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ORIGINAL ARTICLES.

THE COAGULATION OF THE BLOOD.[1]

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IN the following review of the more recent investigations regarding the coagulation of the blood, it is intended to report on some of the more important facts in the first place and to briefly consider afterward what is usually termed the "theory of the coagulation of the blood," which really, however, comprises only one phase of the process of coagulation. I shall not limit myself to a consideration of the vertebrate blood, but shall include in this review the blood of invertebrates. It is clear that in elucidating difficult problems, containing many unknown factors, it is of advantage to have as large a number of equations as possible. The following report must necessarily be of a fragmentary character and can only consider certain aspects of the problem:

1. The inclusion of invertebrate blood, as for instance that of the lobster, in this review, is justified because recent investigations have shown the great similarity which exists between the coagulation of vertebrate and invertebrate blood. This applies to the coagulation of the fibrinogen proper, which is present in a colloidal solution in the plasma. It also applies to the phenomena of agglutination, which in the case of vertebrates as well as invertebrates, precede the coagulation of the fibrinogen consisting in the former class of animals in an agglutination of the blood plates and in the latter in an agglutination of the ameboid blood cells. The conditions determining these agglutinative phenomena are different from those which determine the coagulation proper, although the changes taking place in these cellular elements are in all probability of the greatest significance in the following coagulation.

2. It is a well-known fact that the presence of foreign bodies may accelerate the coagulation of the blood or of the blood plasma. The rate of this acceleration differs in different kinds of plasma, and a close parallelism does not exist between the coagulative strength shown by certain solid bodies and by other more specific agencies which accelerate the coagulation of the blood. In a blood plasma prepared in a certain way, the former may be very effective and the latter very inefficient and vice versa. One of the factors which seems to increase the efficiency of chemically inert solid substances in accelerating the coagulation seems to be their power of absorbing water. The mechanism of the action of solid bodies is little known, and a comparative investigation of the actions of different varieties of solid bodies would be of great interest.

It is necessary to distinguish between the power of solid chemically inert substances of accelerating the coagulation of the blood and another property of solid bodies, namely that of determining where the fibrin which has been formed is first deposited. In the latter case the action of the solid body is probably merely a mechanical one. The first fibrin formed sticks to the solid particles suspended in the fluid and retracts around them as their center. As we shall see later, there are certain solid substances of animal origin, which have a specific influence upon the blood plasma causing the coagulation of the fibrinogen in their immediate neighborhood.

The fibrin thus deposited around solid bodies has the appearance of a homogeneous gelatinous mass. Through certain mechanical agencies (traction and pressure) this gelatinous mass can be transformed into a system of fibers. In this connection it might be appropriate to mention the so-called coagulation centers described by Hauser. Under certain conditions fibrils of fibrin are seen radiating either from a dying cell, or from blood plates, or from chemically inert foreign bodies. It seems very likely to me that also in this case the formation of fibers around these centers is only a secondary process, due to mechanical factors acting upon fibrin which was at first gelatinous.

3. The influence of foreign bodies upon the blood becomes very apparent in the experiments of Freund and Haycraft, who succeeded in preserving the liquid state of the blood by keeping it in contact with vaseline or with fatty substances. Recently Bordet and Gengou undertook to prove that the influence of the glass, with which the blood is brought in contact, consisted in a conversion of the proferment into a ferment, a process which was accelerated by glass and which was not accelerated or only to a much less degree by such substances as paraffin. Bordet and Gengou found that the plasma after its coagulation had taken place, in the glass, contained more ferment than did the not yet coagulated plasma in the paraffin tube. It is, however, almost certain that this mode of action is not the only one exerted by solid substances.

Another way in which foreign bodies may influence the coagulation of the blood is by their action upon the cells of the blood. This can be best studied in the blood of certain arthropods, as for instance of *Limulus*, which contain only one kind of blood cells. If we collect the blood of a *Limulus* by means of a very clean cannula from the heart of the animal and receive it

[1] Read by invitation before the Pathological Society of Philadelphia.

on a clean slide, instead of collecting it by merely pushing a fine scalpel into the heart, the blood may show no changes with the exception perhaps of a slight agglutination of a certain number of blood cells, which, however, remain oval or round and preserve their granules. Gradually the blood corpuscles sink to the surface of the slide, and those cells which have come into contact with or near the glass begin to show changes of form, sending out pseudopodia and gradually undergoing destructive changes, losing for instance, their granules. Notwithstanding these changes taking place in the cells, the supernatant plasma does not coagulate, because it contains very little, if any, fibrinogen. If, on the other hand, we collect in a similar way the blood of a lobster, which possesses fibrinogen, it is possible to delay but it is not possible to prevent the coagulation of the blood, the changes which gradually take place in the blood corpuscles causing the coagulation of the blood. At least I have not succeeded in preventing the coagulation of the lobster blood by the use of a canula. Haycraft found that by collecting the blood in such a manner that it is surrounded by oil, its coagulation can be prevented. The blood corpuscles, which are completely surrounded by oil, do not send out pseudopodia and are, as I found, not at all or only very slightly changed. We see, therefore, that the same circumstances, which according to Bordet and Gengou cause the new formation of fibrin ferment in the plasma, lead to ameboid movements of the cells and to destructive cell changes. This analogy between the influence of external media upon ferments and cells is of great interest. In both cases the indirect results are identical, producing the coagulation of the fibrinogen. If we remove the cells as rapidly as possible from the blood plasma after the shedding of the blood, the coagulation of the lobster plasma can be prevented for a much longer period than would otherwise be possible. The cells are therefore entirely or to a great extent responsible for the coagulation of the plasma. In order to determine the causes of the apparently spontaneous coagulation of the blood, it is of the greatest importance to analyze still closer the factors leading to these cell changes.

Is a certain mechanical factor, namely the pressure of the narrow wound upon the outflowing cells, or is the influence of contact with the surrounding tissue, *e.g.*, muscle tissue, of the greatest importance in causing these cell changes in the case the blood leaves the body through the wound directly without the aid of a canula? If in the case of *Limulus* we use instead a clean canula, a canula containing dust particles, or, if we collect the blood instead in a dry dish or on a clean slide, in a dish containing some sea water or a NaCl solution of corresponding osmotic pressure the cell changes are not prevented and are just as marked as if the blood had been collected in muscle extract, the cell changes simulating a true coagulation of the blood. We are, therefore, led to the conclusion that mechanical factors are of main importance in determining the changes in the blood cells and indirectly the coagulation of the blood, and that the influence of the tissue is not necessary for the rapid coagulation of the blood flowing out of wounds and, therefore, the main significance of the use of the canula consists in its safeguarding the cells which are of a labile character against the shock produced by the pressure of a narrow wound.

4. These facts and considerations have significant bearing on the interpretation of the results obtained by Delezenne, who found that by collecting birds blood through a clean canula under conditions which prevented the contact of the blood with the tissues, the blood can remain liquid for many hours, and if freed from cells, for many days. Delezenne interpreted these results as mainly due to the absence of the action exerted by the tissues. That the tissue extracts have a powerful action upon the coagulation of the blood can easily be demonstrated. It can, however, be only a question of such a slight amount of substance, which can be extracted from the tissues by the blood passing through a wound, that it becomes probable that the conditions are here analogous to those found in the blood of *Limulus*. If the blood flows through an uneven wound, certain cellular elements of the blood undergo marked changes and substances accelerating the coagulation are admixed to the blood. According to this hypothesis the mechanical conditions of the wound are of primary importance; the action of the tissue coagulins would be a secondary one. For the understanding of the causes underlying the coagulation it would be of great value to determine experimentally what the relative importance of these two factors is. It is not possible to delay the coagulation of the blood of mammals as markedly as that of birds by collecting it through a canula. In this case again it is not unlikely that this difference is due to a different degree of sensitiveness of the cellular elements in birds' blood on the one hand and in mammalian blood on the other.

5. In connection with the effect of chemically inert solid bodies the action of another kind of foreign particles, namely the action of bacteria upon the coagulation of the blood may be considered. The connection between intravascular clotting or thrombosis on the one hand and certain infectious diseases or local infections around the blood vessels on the other hand, has long since been recognized. There exist, however, several possibilities of explaining this relationship. An experimental analysis of the different factors concerned is necessary and a direct examination of the effect of bacteria on the coagulation of the blood suggests itself in the first instance. Much as the influence of bacteria on a great variety of culture media and on the coagulation of milk has been investigated, the problem of the effect of bacteria on the coagulation of the blood has, to my knowledge, never been approached until re-

cently. The reason for this neglect has probably been the difficulty of getting blood plasma in a suitable condition for such an examination. For this purpose a plasma is required which can be prepared without the addition of chemical substances which themselves might influence the bacteria or their products. Birds' plasma prepared according to the method of Delezenne satisfies this condition. In experiments carried out in this way, typical differences were found to exist between different bacteria in their power of coagulating the blood. The *Staphylococcus pyogenes aureus* used in these experiments was, for instance, much more powerful than the *Bacillus coli;* furthermore it was found that by boiling the culture its efficacy was to a great extent destroyed. The action of bacteria is, therefore, not identical with that of chemically inert foreign particles. Combined with this action of the bacteria on the fibrinogen may be a precipitating effect on albuminous bodies of the blood serum as described by Libman and others. Pathological conditions more than any other make a further working out of these problems very desirable.

6. As we mentioned before, it is necessary to remove all cellular elements from the blood either by means of centrifugalization or otherwise, in order to keep the normal blood liquid for a long period without addition of certain chemically active substances. This holds good for the blood of birds which has been collected by means of a clean canula, as well as for mammalian blood which can be kept liquid, if received in a certain proportions of a 0.85 per cent. NaCl solution previously heated to 56° to 57° C. and centrifugalized directly afterward. In a similar way it holds good for invertebrate blood. If we remove, for instance, the agglutinated cells (cellular fibrin) from the blood of the lobster and dilute the plasma in certain proportions with water, we can frequently keep it fluid for a considerable time. Coagulation can be delayed indefinitely if this plasma is afterward heated to 45° to 52° C. for one hour. If to the plasma of birds or mammalian plasma, which has been deprived of its cells, a piece of a blood-clot, or, if to the lobster plasma a piece of the so-called first clot, containing the blood cells is added, a rapid coagulation usually takes place. The same holds good if to birds' plasma and lobster plasma a piece of birds' and lobster muscle respectively is put. On the other hand, I have repeatedly observed that when to diluted bird plasma the centrifugalized goose blood corpuscles were added, their accelerating effect upon the coagulation was relatively slight, although in fresh, undiluted blood, the corpuscles have a distinct accelerating effect. It will be necessary to submit to a still closer analysis the condition under which the blood cells are active and under which they lose their efficiency.

The conditions are similar in the case of lymph as in the case of the blood, as was recently found by Répin. This investigator succeeded in keeping the lymph of the horse liquid when he collected it from the thoracic duct by the aid of a canula. This fact may become of importance if we take into consideration that in the case of the lymph we have principally to deal with one single kind of cells, the leucocytes, and especially the lymphocytes in contradistinction to the complex character of the cells in the vertebrate blood. Nevertheless all the conditions necessary for the coagulation of the blood are present in the lymph and it might, therefore, be of some advantage to investigate the coagulation of the lymph or the coagulation of invertebrate blood, where the conditions are of a relatively simple character rather than to concentrate all efforts upon vertebrate blood.

7. We see, therefore, that at least one or perhaps several elements accelerating the coagulation of the blood are derived from the blood cells. It is probably this same accelerating factor originating from the blood cells, which is afterward, when the coagulation is finished, found in the serum perhaps in a modified form or aided by some new elements. This active principle corresponds in part at least to the thrombin of Alex. Schmidt. A second factor exists, which is of prime importance, for the coagulation of the blood. Different tissues contain substances, which are very powerful in the coagulation of the blood, and these substances can be extracted by water. The substances present in the tissues were either in a somewhat modified form or mixed with other products known to the older investigators, as for instance Alex. Schmidt and Wooldridge. Alex. Schmidt usually used alcoholic extracts. Wooldridge used substances precipitated by acid and soluble in alkali. Both of these authors distinguished between the agency in the blood and the one present in the tissues. Later, however, when under the influence of the work of Arthus, Pekelharing and Hammarsten, the significance of calcium on the coagulation of the blood was clearly demonstrated, and when Pekelharing tried to prove the nucleoproteid character of the thrombin, there was a tendency to regard the chemical agencies present in the blood and those present in the tissues as identical. Pekelharing and Huiskamp believed to have isolated the active substance in the form of the calcium salt of nucleoproteid or of nucleohiston; in the opinion of these investigators the active substance of the serum as well as of the tissues being a nucleoproteid. From the thymus they isolated a nucleohiston. Recent investigations, however, tend to show the existence of a marked difference between the character of these two substances and make it therefore probable that they are not identical.

8. Delezenne found that birds' blood which coagulates very slowly, if collected through a canula, coagulates very rapidly, if it is mixed with extracts of birds' tissues. He interpreted the power bird's tissues possess of accelerating the coagulation of blood as a compensatory

mechanism intended to make good for the corresponding deficiency in the coagulating power of the blood itself. Later Conradi tried a large variety of tissue extracts and found all of them very active in accelerating the coagulation of the blood.

The fact found by Delezenne and new observations made on the blood of invertebrates led me to assume a specificity of the active principles of the tissue extracts, which I called tissue coagulins in analogy with the substances obtained by artificial immunization.

In a series of comparative investigations I found this specificity to exist in vertebrates as well as in invertebrates. The specific difference in the action of tissues of different classes of animals makes it possible to distinguish between the muscles of two animals as nearly related as the lobster and the blue crab. In this case we have truly to deal with a "biologic test" for tissues, a test moreover for which no preliminary artificial immunization of the animals concerned is required. The blood of amphibia, reptiles and birds is especially favorable for these investigations, less favorable is mammalian blood, which usually coagulates rapidly in contact with any tissue, although differences could be shown to exist in the relation of mammalian blood toward the tissue coagulins of certain classes of animals. Between different birds and between different mammals (and probably also between different reptiles and amphibia) it is not possible, except in the case of certain animals, to demonstrate the existence of a specificity. We have, therefore, to deal with a class specificity rather than with a species specificity, although it is quite possible that a still further specificity does exist and that complicating factors prevent it from becoming demonstrable. Such substances as the tissue coagulins might be called "specifically adapted" substances, the term specific being frequently used to designate merely a difference in chemical character. I suggested on former occasions that the origin of such specifically adapted substances might be due to a process of auto-immunization; similar considerations might apply to the origin of other ferment-like substances. In the case of the active substances of the blood, a specific adaptation exists only in so far as the thrombin of vertebrates is without effect upon the blood of invertebrates. These results have recently been confirmed by Muraschew, who also found a specificity of tissue coagulins and a lack of specificity in the case of the blood coagulins although the methods used by this investigator were in part at least based on probably incorrect conceptions.

9. There exist further differences between these two substances: (*a*) They act differently on the blood plasma which has been deprived of calcium, as for instance fluorid plasma and oxalatplasma, in regard to which the active principle of the blood, the thrombin, is more effective than the tissue coagulins. (*b*) They act differently on pepton plasma, which responds more or less easily to tissue coagulins and little or not at all to serum (thrombin). (*c*) They behave differently in regard to fibrinogen which coagulates under the influence of serum and not under the influence of tissue coagulins. In many, but not in all cases the latter, however, becomes active after addition of calcium to the fibrinogen. (*d*) The active substances contained in the tissues are, provided putrefaction is prevented, more resistant than the thrombin. With relatively slight modifications the same differences exist in invertebrates between extracts of tissues, *i.e.*, of muscle and extracts of the blood cells, which are contained in the so-called first coagulum. Of special interest is the fact that the tistus coagulins are to a great extent dependent on the presence of a certain amount of calcium, that the active substances of the blood on the other hand are active even without the presence of any or of more than a very small amount of calcium. A further difference I found to exist in vertebrates as well as in invertebrates, in the behavior of the two substances toward the dilution of the blood plasma, the tissue coagulins losing their activity much more rapidly if the blood plasma is gradually diluted than do the active substances of the blood, although in the undiluted plasma the tissue coagulins may even have surpassed in efficiency the thrombin of the serum. In all probability, therefore, we have, in the case of the tissue and blood coagulins, to deal with two different substances.

10. An interesting fact, which has already been observed by Alex. Schmidt, is that under a variety of circumstances, the combined action of these two substances, causes a decided increase in their efficiency. Equal amounts of blood and tissue coagulins act stronger than would the double amount of either blood or tissue coagulin alone. This fact has been recently confirmed by Morawitz, who used for these experiments fibrinogen and who could show that even in cases in which tissue coagulins and calcium alone were without effect upon fibrinogen, a combination of these two with blood serum was much more effective than blood serum alone. A similar increase in activity I found if a combination of these two substances acted upon fluorid plasma. In invertebrate blood I was unable to observe any marked increase in activity to exist in the case of a combination of blood and tissue coagulins. The fact that the combined action of two substances is greater than the sum of the action of each individual substance becomes of great interest if side by side with it certain facts found in the studies of immunity are considered. Two substances, amboceptor and complement, combine to exert a bacteriolytic or a hemolytic action. Lecithin enables the active principle of cobravenom to become a hemolytic poison. According to Alex. Schmidt lecithin seems to increase in a similar way the coagulative power of blood serum. A further analogy exists in the

case of trypsinogen which becomes active when combined with enterokinase. In the study of the coagulation of the blood, we meet, therefore, with phenomena related to those which have been very prominent in recent investigations in immunity. Another fact which shows still closer the relationship between these two fields of investigation, immunity and coagulation of the blood, has already been referred to above, namely the specificity of tissue coagulins which suggests their origin as being due to a process of auto-immunization.

Surprising as this increase in activity of two combined substances may appear, similar phenomena have been observed in the case of several relatively simple inorganic reactions, in which the combination of two catalytically active inorganic salts increases markedly the rapidity of the process. A fact especially noteworthy is that in this instance both salts already act uncombined as catalysers. It is necessary to consider this aspect of the problem of coagulation in greater detail because, as we shall see later, the fact of this increase in activity which is produced by the combination of tissue and blood coagulins, plays a very prominent part in the theory of the coagulation of the blood, and it is, therefore, necessary to collect all analogous facts in order to obtain a sound basis from which to judge certain theoretical conclusions. Alex. Schmidt observed an acceleration of the coagulation to take place, when he combined the action of his thrombin, a watery extract of the alcoholic precipitate of blood serum and of tissue extract on the peritoneal fluid of a horse, one of those liquids which were called by him paraplastic.

11. Another somewhat similar phenomenon of activation has been recently observed by Bordet and Gengou. In this case the addition of serum, which contained only a small quantity of active thrombin was able in causing the coagulation of diluted, salted plasma, to create in this plasma a large quantity of active thrombin, which was strong enough to produce the rapid coagulation of oxalated blood. We have mentioned that according to Bordet and Gengou a similar production of active thrombin was brought about by the effect of the contact with glass upon the plasma. These experiments of Bordet and Gengou are, however, complicated by an intervening coagulation of the fluid in which the new formation of thrombin is later found to have taken place. These investigators bring about the coagulation of the plasma through the action of a mechanical or chemical agency. They compare the amount of ferment present in the blood plasma before the coagulation has started with the quantity of ferment present in the serum after coagulation has taken place and find the serum a much more active fluid than the coagulated plasma had been. They conclude that the agency bringing about the coagulation of the plasma was able of producing this result by means of a creation of new ferment. This may be correct; the argument would, however, be still stronger if it were possible to demonstrate a production of active thrombin in serum, which does not coagulate instead of in plasma by the same mechanical or chemical agencies. In the course of the ordinary coagulation of the blood, which apparently takes place spontaneously, a similar apparent new formation of thrombin can be noticed; moreover, the maximum of the new formation of thrombin was found by Arthus some time after completed coagulation, so that one may assume that the new formation of the ferment continues even after the coagulation of the blood has been finished. Another way of increasing the power of serum, which was already known to Alex. Schmidt and was recently confirmed by Fuld and Morawitz, consists in adding alkali or acid to the serum, and in subsequently neutralizing it.

When we cause the coagulation of goose plasma by the addition of a piece of birds' tissue or of a piece of blood coagulin, there is no indication that new thrombin has been formed in the plasma undergoing coagulation. The same applies to lobster plasma, which clots under the influence of a piece of lobster muscle or of the agglutinated blood cells of the lobster. It holds good also for goose blood, obtained by the aid of a clean canula. If we test at different periods the blood during the slow process of coagulation, no appreciable amount of newly formed thrombin, which would be able to cause the coagulation of fluorid plasma can be found. We have, therefore, reason to believe that under these conditions the substances extracted from the coagulum or from the agglutinated blood cells and from tissues are sufficient to account for the coagulation of the plasma.

12. There are, therefore, one or more substances present in the blood cells, which accelerate the coagulation of the blood, and which are of decisive importance for the coagulation of the blood or lymph. It is certain that in the blood of the lobster this substance is found in the one variety of blood cells which this animal possesses. It is possible to extract this substance from the cells under certain conditions. I found a great difference to exist in the efficiency of different procedures of extraction. A pure sodium chloride solution was found to be unfavorable as a means of extraction. The addition of calcium chloride improves the result of the extraction; there are, however, probably other substances besides calcium of importance in this process. In this case as in so many other conditions an antagonism exists between the action of calcium and sodium. There can be little doubt that in the case of the lymph the active substances are contained in the leucocytes and especially in the mononuclear variety, the lymphocytes.

13. The question is more complicated if we consider vertebrate, especially mammalian blood. Alex Schmidt believed the mother substance of the thrombin to be derived from the leucocytes,

which, according to him, transmit it in part at least already to the circulating blood. Besides the zymoplastic substance (tissue coagulin), he believes the leucocytes to contain a second substance, the prothrombin, as the mother substance of the active ferment was called. This substance, according to Schmidt, was also to be found in the other varieties of blood cells and in tissues. Other investigators, however, as Bizzozero, believed the blood plates to be the source of the prothrombin. Pratt showed that in many cases there did not exist a direct relationship between the number of the plates and the coagulation time of the blood. Recently, however, Morawitz succeeded in preparing an extract from blood plates, which behaved very much like the mother substance of thrombin toward fibrinogen. It is not unlikely that the blood plates do contain such a substance. The apparently similar behavior of the blood plates and of the blood cells of invertebrates, as for instance of the lobster, seems to favor such a view, both kinds of cellular elements undergoing rapid changes after the shedding of the blood, both sending out pseudopodia, in both probably partial processes of solution taking place and both agglutinating —this agglutination in the case of vertebrate, as well as of invertebrate blood, being independent of the coagulation of the fibrinogen. These analogies make it possible to assume that the blood plates are the source of the mammalian prothrombin. There are, however, some objections to be considered. The lymph coagulates without containing blood plates. I found, furthermore, the red blood corpuscles to accelerate the action of serum as well as that of the tissue extracts. In the latter respect the red blood corpuscles behave, therefore, like the blood coagulin (the active substance of the serum). Morawitz found leucocytes, which he obtained from a sterile pleural or peritoneal exudate free from the blood coagulins, although the leucocytes were alive. This, however, does not absolutely disprove that these cells do contain the active substance when circulating in the blood. We know that the production of ferment-like substances is dependent on a number of environmental conditions. It is, therefore, not certain that the red and white blood cells contain exclusively tissue coagulins. In this case we should expect extracts from white and red corpuscles to show the same specificity, which is characteristic of tissue extracts. It would be of interest to undertake investigations in this direction. It is believed by a large number of investigators that the blood plates are the extruded central substances of nucleated blood corpuscles, containing part of the nuclear substance. If this view is correct it would be difficult to see why the blood coagulins (prothrombin) should be limited to the nuclear substance of one kind of cellular elements. We see, therefore, that it is not very likely that the blood coagulins are solely derived from the blood plates, but that a number of facts render it more probable that other cellular elements may also be the source of this substance.

14. In regard to the chemical character of these two substances, the blood and tissue coagulins, nothing definite is known; they share this fate with the other organic ferment-like substances. It is not certain that they are nucleoproteids as Pekelharing and Huiskamp assume. According to Morawitz, it is possible to obtain extracts of tissues, which are still active without it being possible to demonstrate the presence of a nucleoproteid. Instead of trying to prepare the active principle from such organs as lymph glands and thymus, which are exceedingly rich in nuclein substances, it would perhaps be advisable to use muscle tissue, which is also very active and contains only very little nucleoproteid. If we consider on the one hand the great difference existing between the amount of nucleoproteid of liver and muscle, on the other hand the great activity of muscle tissue, which in the case of birds is hardly inferior to that of the liver, it becomes unlikely that the nucleoproteids and nucleohistons of the different organs are the active principles, although at present it must be considered possible that the nucleoproteids or nucleohistons may have an accelerating effect upon the coagulation of the blood.

15. Comparative study of the effect of different organs upon the coagulation of the blood would not be without pathological interest, if we consider the pathological importance of hemorrhages. Liver and kidney of the dog are very active, the latter, however, is more active than the former. The pancreas was found to be less active, though not entirely ineffective. Very efficient in causing the coagulation of the blood is the mucus covering the intestine, a fact not without significance in case of intestinal hemorrhages. During autolysis of organs I found the tissue coagulins gradually to disappear in the remaining solid substance which had escaped liquefaction. Conradi had observed that in the liquid produced by the splitting action of autolytic ferments, substances inhibiting the coagulation of the blood were formed. On the other hand, in organs undergoing the changes characteristic of phosphorus poisoning, I could not find any decrease in the quantity of tissue coagulins, although in phosphorus poisoning the changes taking place in certain organs have some similarity to autolytic processes. In the blood, however, marked changes are taking place during phosphorus poisoning, as Corin and Ansiaux had found. They noticed a disappearance of fibrinogen and thrombin (blood coagulins). I could confirm these observations, and I found, moreover, that these two substances disappear in a similar ratio. The loss in the amount of fibrinogen varies in different cases of phosphorus poisoning, and the amount of thrombin lost varies correspondingly. In this case it appears as if the liver was of direct or indirect importance for the formation of fibrinogen and of blood coagulin.

There exist a few more data in regard to the importance of different organs for the coagulation of the blood. Contejean and Delezenne found that the substance inhibiting the coagulation of the blood which is formed after injection of pepton in dogs, can only be formed if the liver is present. Meltzer and Salant observed that after nephrectomy the coagulation of rabbit blood is markedly delayed. It is at present impossible to state in which way the functioning of the liver affects the quantity of fibrinogen or fibrin ferment present in the blood, and in the case of the extirpation of the kidneys the cause of the delay in the clotting of the blood is as yet unknown.

16. There are not only substances present in the tissues and in the blood itself causing or accelerating the coagulation of the blood, but also substances or mechanisms inhibiting it. Alex. Schmidt extracted from tissues or cells an inhibiting substance which he called cytoglobin. I found in the muscle of arthropods not only a substance accelerating the coagulation of the blood, but also another one inhibiting it. The effect of the muscle extract upon the blood is therefore equal to the sum of these counteracting processes. A similar substance complicates perhaps the action of the tissues of vertebrates. It has been found that in pepton blood or in fluorid and oxalat plasma, substances are present inhibiting the coagulation of blood to which they are added. It is very probable that such inhibiting factors exist in the normal plasma or serum, to which no chemical substances as oxalates or fluorids have been previously added. I found such a substance, or more generally speaking, such a mechanism in the dog serum which inhibits the action of tissue coagulins upon the coagulation of pepton blood, and Muraschew found it to exist in the case of goose plasma. In both cases there are indications that these mechanisms or substances are of a similar specific character as the tissue coagulins.

Other substances exist inhibiting the coagulation of the blood, as, for instance, leech extract, which acts on the thrombin of vertebrates, neutralizing it, and which is without action on invertebrate blood. There is a similar substance present in anchylostoma. Other inhibiting substances of a different kind have been found in certain snake toxins, the action of which on the coagulation of the blood was investigated many years ago by Weir Mitchell and Reichert. From the investigations of Morawitz it is likely that in the case of cobra poison this inhibiting substance acts mainly by antagonizing the tissue coagulins. A similar substance is present in the blood which has become uncoagulable after injection of tissue coagulins in the circulation of the blood.

17. If we inject tissue extracts into the vein of an animal a rapid and extensive intravascular coagulation is produced. This is followed by the formation of a so-called negative phase, in which the blood coagulates less rapidly or not at all. If we inject, on the other hand, even activated blood serum of the same species, no intravascular coagulation is produced; the same holds good for small or medium doses of the serum of another species. The latter serum may, however, be able to produce intravascular clotting, if it is injected in very large quantities. In this respect intravascular blood behaves, like pepton blood, an analogy which led Wooldridge to believe that pepton blood corresponded most closely to the blood in its natural condition.

18. Let us now consider some of the so-called theories of the coagulation of the blood. The discovery that the coagulation of the blood is caused by substances which act as catalysers is due to Alex. Schmidt. He assumed that the leucocytes produce the proferment which, according to him, is already present in the circulating blood. Under the influence of the zymoplastic substances derived from leucocytes and other cells, this proferment is transformed into the active thrombin, which alone causes the coagulation of the fibrinogen. Arthus, Pekelharing and Hammarsten showed that calcium was necessary for the coagulation of the blood. The two former believed at first that the calcium went into combination with the fibrinogen. Pekelharing believed it also to be necessary for the formation of ferment out of proferment. Hammarsten showed that the latter was the only function of the calcium, and that it did not combine with the fibrinogen to form fibrin. Recently Morawitz and Fuld undertook to combine both of these theories. According to Morawitz the blood plates shed the thrombogen. The latter under the influence of tissue coagulin which, in analogy to enterokinase, he calls thrombokinase, is transformed into prothrombin; the latter combines with calcium to become the active ferment or thrombin. Thrombin would, therefore, be the only substance which has a direct action upon the fibrinogen, and the tissue coagulins, according to this theory, would act indirectly, namely as producers of the ferment.

19. There are certain objections to be raised against the theory of Alex. Schmidt, even in the modern form given it by Morawitz and Fuld. This theory is mainly based on the fact that a combination of tissue extract and serum acts much stronger than the sum of the component parts would lead one to expect. This increase in strength is, however, not an essential factor. It is absent in the case of invertebrates, and if present can be explained in different ways: (1) An activation of a proferment may take place either in the serum or in the tissue extract. (2) Both substances may attack the fibrinogen independently, each one acting in a different way.

Under this condition they may strengthen each other's action, even if one of these two substances alone would be entirely powerless. (3) Intermediate reactions may take place during the

process of coagulation, and these substances might accelerate such intermediate reactions. (4) This increase in strength might not at all depend on the action of the active principles which cause the coagulation, but might be produced by another constituent of either serum or tissue extract, by providing favorable conditions for the action of the active agency. We saw, furthermore, that such an increase in strength was found by Alex. Schmidt to take place when he combined thrombin with the zymoplastic substance and under conditions in which the presence of a proferment could be excluded. A similar increase in strength was observed by Bordet and Gengou when they combined the action of inactive with active serum. I have mentioned similar phenomena in the case of inorganic catalyzers. By making use of the fact that tissue coagulins are specific, I could, moreover, show that the increase caused by the combination of serum and tissue extracts depends greatly upon the kind of plasma and fibrinogen on which this combination acts, and that the strength of this acceleration does not primarily depend upon the kinds of serum and tissue extracts used, but on the combination of tissue extract and fibrinogen. This proves that the tissue extracts attack the fibrinogen directly. Muraschew found similar conditions, the significance of which he did, however, not recognize. There are other experimental facts, also favorable to this view, which cannot be discussed here. This explanation would make it, furthermore, easy to understand why the leucocytes of the lymph are able to cause the coagulation of the lymph fibrinogen, although the lymph does not contain blood plates, which, according to Morawitz, are the source of the thrombogen. It would also explain why, after intravenous injection, the tissue extracts cause such a rapid coagulation of the blood. To accomplish this intravascular coagulation the presence of free proferment in the circulating blood would not be necessary, if we assume that the tissue coagulins are able to act directly upon the fibrinogen. It is, therefore, probable that two substances are of importance for the coagulation, the tissue and blood coagulins, both acting independently upon the fibrinogen. It is possible, but not certain, that under certain conditions they act upon each other, thus increasing their strength.

20. Both these substances are derived from cellular elements, the blood coagulins becoming free probably as a result of the changes which certain blood elements undergo on leaving the vessels.

In the foregoing, the term "blood coagulins" was preferred to that of thrombogen, prothrombin or thrombin, as being a very general expression, not indicating the condition in which the substance leaves the blood cells. It is as yet uncertain if this substance is first liberated in the form of a distinct proferment, which, under the influence of certain mechanical or chemical agencies becomes converted into a chemically different substance, the thrombin, or if a part of the substance leaves the cell already in an active state, although another part might become activated later by different means. It is also uncertain, whether such an activation would consist in the chemical transformation of one substance into another or in some other process. The blood of invertebrates might prove to be a favorable material for further study of these problems.

21. The blood remains liquid inside of the blood vessels because the blood cells suspended in a fluid of the composition of the blood plasma and surrounded by a smooth lining of endothelial cells, undergo no changes leading to the discharge of the blood coagulins. According to Overton lipoid substances are very prominent in the composition of the outer part of cells. The intact endothelial cells may, therefore, be supposed to act in a similar but more perfect way upon the blood cells, and directly or indirectly upon the coagulation of the blood, than oil, which prevents the ameboid movements, and the processes of dissolution of the blood cells, and that prevents thus indirectly the coagulation of the blood.

Cells, of course, are probably constantly disintegrating in the blood inside the body. This, however, does not necessarily lead to the setting free of thrombin. We found that in cells undergoing autolysis a marked decrease in the quantity of tissue coagulins can be very readily observed.

We might, therefore, conceive that blood cells which die gradually, have at the time of dissolution become free from active substances, or that in the case they still possess a part of their coagulins, antibodies, whose existence in the blood seems probable, are able to counteract their influence. There is no indication that, as Brücke suggested, the endothelium of the vessels contains a substance inhibiting the coagulation of the blood. Recently Gutschy believed to have proven this hypothesis experimentally. In repeating Gutschy's experiments, I did not, however, find any evidence of the existence of such substances.

22. So far the conditions under which the coagulation of the blood or blood plasma is accelerated or inhibited have mainly been studied outside the animal body. Only little has been done to determine how far the factors accelerating the coagulation outside the body are present inside the organism and how different parts of the body behave in this respect. I found that blood plasma of the goose injected into the peritoneal cavity of different varieties of animals did not coagulate within the time of observation. Morawitz, who confirmed this observation, added the further fact that pepton plasma coagulated rapidly under similar conditions. There is here a new field for investigation, which will probably prove of interest for the pathologist.

NEPHRITIS COMPLICATING MUMPS.

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That inflammation of the kidneys may complicate acute infectious parotitis has been recognized, but the cases reported have been very few, and no attempt has ever been made to correlate the observations described. Many of the text-books on diseases of children do not mention nephritis as a possible complication of mumps, and the others speak of it as a rare condition, of which only a few cases are on record.

The following well-marked case has recently come under the writer's observation and is thought to be of particular interest, in addition to the rarity of the condition, because of the very unusual family predisposition to kidney disease, and also because of the superimposed occurrence of measles during the course of the other affections:

Case.—E. S. G., a sturdy boy of four years. *Previous History:* Has never been ill, except for occasional digestive disturbances. *Family History:* Paternal grandfather died of Bright's disease at the age of fifty years; paternal grandmother died of acute Bright's disease at age of thirty-two years; maternal grandfather died at sixty years from chronic Bright's disease. Father has had an attack of acute inflammation of kidneys, following exposure to cold, lasting two months. Urine now normal. Mother had very severe acute Bright's disease, following operation under ether. Urine now normal. Sister had acute nephritis with scarlet fever. Urine now normal. The one remaining brother, ten years old, has had scarlet fever and measles without kidney lesion.

Present Illness.—January 17, 1904. When first seen, had well marked double parotitis, which had existed one day. No unusual symptoms. Temperature 100° F.; January 22, swelling of parotids continues, no fever for two days; patient allowed up about the room; brother in same house taken ill with measles; January 25, swelling less marked. Patient seems bright, but a little pale. No fever; January 27, anemia much more marked and very striking. Slight puffiness of eyelids. Patient is languid. Temperature 101° F. Inquiry develops that urine has been dark, cloudy and scanty for two days. Patient put to bed on milk diet; January 28, specimen of urine first obtained. It is distinctly "smoky," of greenish color, with considerable amorphous sediment. Acid specific gravity, 1.022; contains five per cent. albumin, no sugar or indican, urea, 1.9 per cent. Numerous large and small granular, and especially pus casts. Very numerous red blood cells and leucocytes. Quantity, 12 ounces in twenty-four hours. Anemia very marked; hemoglobin 45 per cent. Temperature, 100° F. Loud hemic murmur heard over apex and base of heart. January 30, patient very ill. Temperature 103° F. Swelling of left parotid has disappeared. February 1, condition about same. Urine contains only three per cent. albumin; quantity, 18 ounces. February 2, slight rash of measles over face and neck. Temperature 104° F. Child very ill. Urine same as before. February 3, measles well developed. Temperature 103° F. Urine one per cent. albumin; casts, blood and leucocytes, as before; quantity 23 ounces. February 4, temperature has fallen suddenly to normal. February 5, rash fading; still slight swelling of right parotid. Urine, specific gravity 1.020 with faint trace of albumin. Many hyaline, granular and pus casts; few leucocytes; no red red cells. February 8, rash has disappeared; no albumin in urine, but casts persist. Swelling of right parotid has disappeared. Patient still anemic; hemoglobin, 50 per cent. February 19, patient entirely convalescent; no albumin or casts in urine; hemoglobin, 65 per cent. Eleven months later. Child still entirely well, and urine is normal.

Summary.—A case of acute exudative nephritis in the course of mild double parotitis, in a boy four years old, with a marked family predisposition to kidney disease, occurring in the twelfth day of the parotitis, which was further complicated on the eighteenth day by a moderately severe attack of measles. The measles exercised no influence upon the nephritis, which entirely disappeared in thirty-five days, and after several months had not recurred.

A careful review of the literature has revealed reports of 29 similar cases. In addition to these, several observers mention the occurrence of febrile albuminuria during mumps as not infrequent. Catrin, in particular, examined the urine carefully in a series of 130 cases. In 91 cases the examinations were made only in the presence of some clinical indication or complication. Albuminuria was found in 6½ per cent. of these cases. In 39 cases the urine was examined as a routine. Albuminuria was found in 30 per cent. of these cases.

These results indicate the frequent occurrence, in mumps, of albuminuria due to acute renal congestion or degeneration, commonly designated "febrile albuminuria," and of no great significance. The series of cases here collected, however, includes only those in which there was evidently actual inflammation of the kidneys.

SUMMARY OF 30 CASES.

Age is mentioned in 17 cases: Under seven years in eight cases; over sixteen years in seven cases; twelve years in two cases; youngest, four years; oldest, twenty-four years.

Sex is mentioned in 16 cases: Male, twelve cases; female, four cases.

Family history: Very marked predisposition to nephritis in writer's case.

Previous history: Mentioned in four cases, all negative.

No.	Reported by	Age.	Sex.	Family History.	Previous History.	Character of Parotitis.	Time of Onset.	Symptoms.	Urine.	Duration.	Other complications.	Result.	Remarks.
1	Pratolongo.					Double.	After subsidence of parotitis.	Anasarca; dyspnea, and fever.					In 1782. Letter to Borsieri.
2	Burne.	12	M.			Double.	Four days after subsidence. Sixteenth day.	Violent convulsions; coma; suppression urine.	Very scanty; pale; smoky greenish; much albumin.	Five days.		Recovery	
3 to 5	Renard.						Two or three days after parotitis cured.	Edema of face and feet.	Considerable albumin.	Three weeks.		Recovery	
6	Colin.	24	M.		Negative.	Left.	Second day of parotitis.	General anasarca; headache; albuminuric retinitis; dyspnea; convulsions; coma; death.	300 c.c. in 24 hours. Urea, 1.9%. Albumin, 2.2%.	Twenty-four days.	Orchitis. Double.	Death.	Autopsy. Large white kidney. Acute exudative nephritis, with considerable connective tissue mostly confined to cortical zone.
7	Beale.	19	M.			Double.	Five days after sub. of parotitis.	Marked headache; pain in back.	Trace albumin.	Five days.	Orchitis. Double.	Recovery	
8	Eichhorst.	7	M.					Acute hemorrhagic nephritis.	Blood; albumin.	Eight mos.		Chronic nephritis	Typical picture of secondary contracted kidney.
9	Isbam.	4	F.			Double.	Second day of parotitis.	Albuminuria; after exposure, high fever; delirium; dyspnea; excited heart action.	Much albumin; blood casts.	Not sure. Some time.	Pericarditis.	Recovery	
10	Sorel.	24	M.			Double.	Five days after subsidence.	Fever; delirium; slight motor aphasia.	Albumin; bloody mucus.	Few days.	Orchitis. Right.	Aphasia for some time. Recovery.	
11	Croner.	6	M.			Double.	Tenth day.	Malaise; edema eyelids, feet and hands; ascites.	Scanty; bloody; large amount albumin.	Six weeks.	Acute cervical lymphadenitis.	Recovery.	
12	Karth.	24	M.			Hypertoxic.	With onset of parotitis.	Headache; sleeplessness; edema eyes; high fever.	Much albumin.	Two weeks two days longer than parotitis.		Recovery. Like diphtheria or scarlet in severity.	
13 to 14	Demme.	7	F.				During subsidence of parotitis.	Like scarlet nephritis.	Glomerulonephritis.	Short.		Recovery.	Observation in 117 cases.
15	Mettenheimer.					Left	With parotitis.	Much albumin.	Much albumin.	Four days.		Recovery.	
16 to 18	Gagé.						Sixth to eleventh day of parotitis.	Fever; albuminuria.	Albumin.	Very transient.		Recovery.	Large number cases investigated for this purpose especially.
19	Bezy.					None.	During epidemic.	Delirium; no edema.	Scanty; smoky much albumin.	Few days.		Recovery.	Quoted as possibly case of mump nephritis, without parotid involvment as is sometimes case in orchitis. Comby admits possibility.
20	Catrin.						Eighteen days after cure.	Edema of eyelids; headache; vertigo.	Much albumin.			Recovery.	130 cases. 91 cases examined if any indications—6½% albuminuria. 39 cases all examined—30% albuminuria.
21	Toussaint.	Adult	M.		Neg.	Double.	Fifth day.	Violent convulsions; coma; albuminuria; scanty Urine.	Much albumin.	Two days.	Orchitis. Right.	Recovery.	
22	Henoch.	6	F.			Double.	One week after subsidence of parotitis.	Albuminuria.	Blood and albumin; epithelial cells; no casts.	One week.		Recovery.	Also had whooping-cough at time.
23	Henoch.	5					Tenth day.		Blood and albumin.			Recovery.	
24 to 25	Geschister. (Henoch.)						After parotitis.		Blood and albumin.			Recovery.	

No.	Reported by	Age.	Sex.	Family History.	Previous History.	Character of Parotitis.	Time of Onset.	Symptoms.	Urine.	Duration.	Other complications.	Result. Recovery.	Remarks.
26	Kerley.	4	M.			Double. Moderately severe.	Eighth day.	Anemia; edema of eyelids; suppression; fever.	Almost solid with albumin; blood; hyaline and granular casts.	Six days.			Anemia for some time.
27	Granier.	16	F.	Neg.	Neg.	Mild.	Six weeks after parotitis.	Edema of legs.	Albumin.	Developed into chronic.		Relapsed after apparent cure and died.	Went out in cold and wet a few days after mumps appeared.
28	Granier.	12	M.			Mild.	Several days after.	Anemia; malaise; edema feet and eyelids; convulsions; coma.	Much albumin.	Considerable time.		Recovery.	Exposed to wet in snow early few days of mumps.
29	Sylvester.	17	M.			Double.	Third day.	Delirium; convulsions; headache fever; suppression; tenderness over kidneys.	Slight albumin.	Nine days.	Orchitis. Left.	Recovery.	
30	Miller.	4	M.	Nephritis in three grandparents, both parents, one sister.		Double.	Twelfth day.	Anemia; puffiness of eyelids; fever; scanty urine.	Smoky; scanty; 5% albumin; casts; blood and pus.	Twenty-three days.	Measles.	Recovery.	Anemia persisted for some time.

Character of parotitis: Mentioned in sixteen cases; double in fifteen cases; mild or moderately severe in fifteen cases; very severe in one case.

Relation of onset to parotitis: Mentioned in twenty-nine cases. During course of parotitis in thirteen cases; first to third day, five cases; fifth to eleventh day, eight cases.

After subsidence of parotitis, sixteen cases; first week after, fourteen cases; eighteenth day after, one case; six weeks after, one case.

Symptoms: Those of acute nephritis in all grades of severity.

Other complications: Orchitis in five cases.

Duration given in 23 cases. One week, or less, thirteen cases; from one to two weeks, two cases; two to six weeks, six cases; developed into chronic, two cases. Result, permanent recovery, 25 cases; developed into chronic nephritis, two cases; died, one case.

Pathology: Autopsy in only fatal case showed large white kidney, with changes of an acute nephritis, with increased connective tissue.

Conclusions.—1. Acute nephritis complicating mumps may occur in either children or adults, and is much more frequent in males than in females.

2. The parotitis is usually double, mild in character, and the nephritis is more liable to occur during early convalescence. Exposure to cold may be a predisposing factor.

3. The nephritis is usually moderately severe, of less than one week's duration, and ending in complete recovery. Rarely it may develop into chronic nephritis, or it may be so severe as to cause death.

4. This complication of mumps is infrequent, but probably not as rare as usually considered. Febrile albuminuria is probably very common in mumps, but this, as well as more serious kidney lesions, is probably often overlooked.

5. Careful urine examinations should be made, and strict precautions against exposure should be taken, in all cases of mumps, both during the acute symptoms and during convalescence.

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THE STATUS OF SUPRARENAL THERAPY.[1]

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So much has been written and spoken of in relation to the uses of the suprarenal that one knows not where to begin. The history of suprarenal therapy has been amply covered by different observers, and it is needless for me to do more than simply mention the fact. As my time is limited I hope you will bear with me when I pass rapidly over most of the parts and give but a synopsis of each portion.

Suprarenal is not a new drug. It is an old one but owing to an inert preparation, the use of the

1 Read before the Ninety-ninth Annual Meeting of the New York State Medical Society, at Albany, January 31, February 1 and 2, 1905.

drug was discontinued and fell into oblivion until 1892, when Dr. W. H. Bates, of New York, revived it. Some few years after this Dr. Bates had much trouble in enlisting medical men to experiment with the remedy and note its relative value as a therapeutic agent in the different diseases. At times he said he was most discouraged and despaired of ever getting one to use the drug. By his persistent efforts he has now succeeded in putting to work the whole civilized world. So wonderful are the properties and uses of this drug that in but an excedingly short time it has become one of the most widely known and most important in use. Upon hundreds of thousands of cases has the drug been administered internally or applied locally. It is a strange coincidence that in the immense amount of literature, commercial or otherwise, papers and lectures that have been published within the past two years, there has not been mentioned once the name of that indefatigable and painstaking worker, Dr. W. H. Bates, of New York, through whose untiring efforts, unassisted except by repeated antagonistic remarks and stumbling blocks placed in his road, all the civilized nations have become acquainted with so wonderful, invaluable and now indispensable a remedy.

I am convinced that the revival of this valuable drug is one of the greatest achievements of the past fifteen years. It would please me to cite the good work of the many ardent workers on this drug, but it would take up too much time and space. Suffice is it to say that it has been conclusively proven by different observers in different parts of the world that the suprarenal extract and its active principle are not only of benefit but also of undoubted great value as an addition to our therapeutic armamentarium. Over three years ago I sent out over eight hundred communication to all parts of the civilized world requesting reports, favorable or unfavorable, from the internal administration of the suprarenal. I received but eight replies stating that my letter was duly received and that it would shortly be published. Up to this late day I have not received personally from this source, one report of a case treated with the drug.

In the *New York Medical Journal* for October 6, 1900, I published my first paper entitled "The Use of the Suprarenal in Organic Diseases of the Heart—a Preliminary Report." In the same journal, in 1901, I published an exhaustive report on its use in organic heart disease. In the MEDICAL NEWS for January 4, 1902, I published forty-five cases of hemorrhages from various causes treated with the suprarenal. In the *New York Medical Record* for November 17, 1900, I published a report on the use of the suprarenal in diseases of the lower air passages.

Preparations.—We have the dried and powdered suprarenal substance which is designated as suprarenal extract. We also have the alkaloid, better termed the active principle, which is called adrenalin. Solutions of the suprarenal extract do not keep, but solutions of adrenalin chloride keep indefinitely, are reliable, and are non-irritating. Whenever in the future I speak of only suprarenal, as such, I also mean adrenalin chloride.

Administration.—The powder is administered internally in three-grain doses either as a powder or better in capsule form. The active principle is administered internally in the form of a solution, the strength of which is 1/10,000 to 1/1,000, in doses of from five to fifteen drops. To get the best results it should be administered frequently—from one to three hours or oftener as the case may require. The solution is dropped on or beneath the tongue for very rapid effects, or it can be swallowed. Some now advocate to use it hypodermatically and by electrolysis. As to the hypodermatic use of the drug I believe it is unnecessary and I have never been in favor of its use. If an adrenalin preparation is at hand, a few drops can be rapidly placed on or under the tongue and its action will become apparent in about the time it takes to get a hypodermatic syringe ready for action. An effect was produced within twenty seconds when adrenalin chloride was dropped under the tongue. Most all of you know that when you are in a great hurry, the syringe often fails to work properly and much valuable time is lost. I have read in literature that the hypodermatic administration of the solution (otherwise called the subcutaneous injection) had been given in collapse and the site of the injection was often very painful and that this form of administration was dangerous. Solutions in the strength of 1/10,000 have been known to cause great irritation while stronger solutions have given rise to gangrene and subsequent sloughing. Some state that they have used it hypodermically without any deleterious results. Those who have not advised subcutaneous administration advise intravenous injection, but they also state that when adrenalin solution is given by mouth, very rapid and beneficial effects are obtained with no danger whatever to keep the physician on his guard when he so administers it. Why then, if we get very rapid results (often within twenty seconds), when it is given by mouth without the least danger to cause us any anxiety, should one use the hypodermatic or intravenous method with such dangers as are above portrayed?

Surgically it is applied locally to the mucous membrane of the eye, ear, nose, throat, urethra, bladder, etc., in a strength of 1/5,000 to 1/30,000, with or without the addition of other remedies as the case may indicate. Some drugs destroy the active properties of the active principle in solution. Those most often employed, and which do not materially affect its valuable and powerful properties are cocaine, boric acid and normal salt solution. Cyanide and bichloride of mercury, zinc sulphate, pilocarpin, hydrochlorate and many others have been used in the same solution, but I believe it is better to restrict, up to the

present time, the addition to the three previous mentioned.

Contra-indications.—It has none.

Diseases Treated.—The diseases in which the suprarenal was administered by me and the results published were in all forms of organic heart disease, tracheitis, acute and chronic bronchitis, bronchial asthma, congestion and edema of the lungs, pneumonia, hemoptysis, pulmonary tuberculosis, hemorrhage from the uterus from various causes, such as complete and incomplete abortions, benign and malignant tumors, post partum hemorrhage, metrorrhagia, menorrhagia, atonic conditions and at the menopause. I have also employed it in hematemesis, hematuria, in threatened attack of apoplexy and in apoplectic seizures. The suprarenal, and more lately, the adrenalin chloride solution has been used by many observers both medicinally and surgically in diseases of the eye, ear, nose, throat, larynx, in genito-urinary work, including the kidneys, in scarlatinal angina, asphyxia neonatorum, anesthetic collapse, angioneurotic edema, edema of the glottis, hemorrhoids, hemorrhagic fecal fistula, gastro-intestinal hemorrhage, goiter, gonorrhea, lupus, morphine and carbolic acid poisoning, ulcer of the stomach, for lost voice and for diagnostic purposes. To simmer it down, the suprarenal extract and its principle are of value in organic heart disease, for performing bloodless operations, in most of the diseases ending in itis, as an astringent and as a hemostatic in hemorrhages generally.

Heart.—The suprarenal is one of the most valuable of remedies in organic heart disease. When oth · drugs, including strychnine and digitalis have failed to be of any benefit, the solution of adrenalin chloride has given marked beneficial results. A detailed acount of its action can be found in one of my published papers. Adrenalin chloride has been used in pneumonia as a heart stimulant to tide the patient over a critical period.

Lungs.—The suprarenal has often been of great assistance in relieving the symtoms of a stubborn laryngitis tracheitis and bronchitis when many drugs failed to benefit. In congestion and edema and bronchial asthma the administration of the suprarenal has helped to tide the patient over a critical period and often was the only remedy administered. In pneumonia it was given for its stimulating effects on the heart and for hemorrhages whenever the latter were present. In pulmonary tuberculosis is was administered chiefly to lessen the severity of the cough, to decrease the quantity of the expectoration, to clear the throat, to strengthen the heart and to tone up the patient generally. In hemoptysis from whatever cause, the administration of the remedy gave rapid evidence of its powerful yet harmless effects.

Hemorrhages.—As a hemostatic the suprarenal preparations have no equal. They do the work when all other measures fail to benefit. In hemorrhages from almost any portion of the body, the internal administration of the drug was almost always followed by beneficial results. Some few cases were not benefited by the suprarenal powder, but on administering the solution of adrenalin, these cases were benefited. Surgical, traumatic or so-called idiopathic hemorrhages, unless they are from large blood-vessels are almost always instantly checked by the local application of the drug. So powerful and so rapid are the properties of this greatly lauded remedy that with its help we are enabled to operate, should an operation be indicated, upon those poor, unfortunate individuals, the bleeders, without that dreaded danger of repeated severe and in many cases uncontrollable hemorrhages. Secondary hemorrhages, at first so often reported and dreaded, after the use of the solution of adrenalin chloride, I believe need not cause any further anxiety. Generally speaking they are not any more frequent than before the drug was employed.

Apoplexy.—The timely internal administration of adrenalin chloride had to my mind prevented a number of attacks of true apoplexy. I can now recall the histories of six cases in which the symptoms were such as indicated that an attack of apoplexy was imminent. Adrenalin chloride solution was administered and the threatening symptoms rapidly passed away. All danger of an attack of apoplexy was apparently avoided. Some few weeks to months afterward, I was informed by one of the family that the same patient was later very suddenly taken ill with exactly the same symptoms and the family called in another physician who administered a much different medicine. The result was that the patient died within a short time. Adrenalin might and might not have saved these patients during their last attack, but I have had patients with more than one attack who were markedly benefited by the administration of adrenalin chloride.

Uterus.—Hemorrhages from various causes, such as menorrhagia, metrorrhagia, at the menopause, malignant and benign growths, atonicity, complete and incomplete abortions, post-partum hemorrhage, idiopathic (so-called) hemorrhages and also from persistent oozing after curetting. Dr. Geo. Tucker Harrison, in a paper before the New York County Medical Association said, "Why should we endanger the life of a woman from infection, who is suffering from uterine hemorrhage by the local application of suprarenal extract to the interior of the uterus, when it acts almost as rapidly and as powerfully when administered by mouth without the slightest danger of causing infection?" Adrenalin chloride has been used to diminish the size of an enlarged uterus.

Stomach and Intestines.—Hematemesis from all causes has been rapidly checked by the internal administration of the suprarenal powder. A few cases failed to be benefited by the powder

but on administering the adrenalin chloride solution immediate and permanent relief was afforded. In hemorrhage from the intestines from all causes, from fecal fistula, hemorrhoids and ulcers of the rectum, it has given good results. It has also been reported to have been administered in cases of appendicitis, but I am not aware of the ultimate results.

Eye.—The use of adrenalin chloride has given wonderful results in diseases of the eye. The value of the remedy in diseases of the eye is as a hemostatic and astringent in acute and chronic conjunctivitis, keratitis, choroiditis and almost all the other diseases that end in itis; in gonorrheal ophthalmia, glaucoma, in inflammation of the appendages. Cancer of the lid has been reported to have been cured by its use. As a surgical aid it has given most remarkable service as a hemostatic, controlling hemorrhage except from large blood vessels, thus enabling the operator to proceed with much more rapidity in his work, with greater precision and also, of no less importance, saving the patient's sanguine fluid, which is quite essential in many of the patients operated upon, especially those operated upon in the nose. With the aid of this drug an operator on the eye, ear, nose, throat and for the usual minor surgical work, can be rightly called "bloodless surgeon;" and with the addition of cocaine to his armamentarium, we can add the "painless surgeon."

Ear.—Adrenalin chloride is chiefly used as an astringent in congestion of the auditory canal, the membrana tympani, in the Eustachian tube and in inflammations generally in the middle ear. It is also used to check hemorrhages from traumatism and to prevent hemorrhages during surgical operations. Polypi have been considerably reduced in size from the constant application of the drug. It is also used for severe congestion of ear, to make the tube permeable and by permitting free drainage to give relief to the patient. It has also relieved tinnitus aurium with success when all other remedies had failed.

Nose.—The local application of adrenalin chloride has given marked benefit and when all other remedies had failed to give relief, it has worked wonders. Medicinally it has been employed in hay fever, otherwise called hay asthma, atrophic and hypertrophic rhinitis, edema and congestion. Surgically it acts as the most powerful hemostatic in hemorhages from small blood vessels from various causes. It is most extensively employed in performing bloodless operations on the nose and for the same reasons as in the eye. Continuous applications have caused a decrease in size of polypi. Reports from medical men who do special work on the nose and throat, have noted secondary hemorrhages from its use, after operations, but I believe that the hemorrhages have not been more frequent than before the drug was employed.

Throat.—The suprarenal is mostly employed as a hemostatic whether the etiological factor has been external violence or is going to be a surgical procedure. In catarrhal conditions it is used as a vascular astringent of great value.

Genito-Urinary.—In hematuria either from the bladder, kidneys, or urethra the use of adrenalin chloride administered internally or applied locally as a hemostatic has been followed by prompt beneficial effects. In strictures, when the passage of sounds was almost impossible, the installation of adrenalin chloride enabled the passage of the instruments, and even larger sized ones with comparative ease. It has been employed to reduce extensive congestion of the prostate.

Operations Generally.—It has been extensively employed in operations generally as a hemostatic of exceedingly great value, especially in conjunction with cocaine, chiefly for the purpose of preventing hemorrhage. Operators have used the adrenalin chloride in operations upon the eye, ear, nose, throat, larynx, rectum, genito-urinary, nevi, benign and malignant tumors and whenever oozing and moderate hemorrhages are to be prevented. It thereby enables one to do clean work which previously was extremely bloody and gave a grave aspect to the case. It also enables the operator to inspect his field of operation without hindrance from intruding hemorrhage.

Chloroform Syncope.—Collapse and Shock.—Adrenalin chloride has been administered with good and rapid results. Given before chloroform anesthesia it acts as a preventive to cardiac syncope. Administered in drop doses of 1/1,000 solution into the mouth during the course of the chloroform anesthesia it obviates all danger of unforseen cardiac weakness or embarrassment. You are to understand that chloroform cannot be used indiscriminately, the signs and symptoms of shock neglected while adrenalin is being administered. Adrenalin chloride will act wonderfully in a failing heart and respiration when there is evidence of weakness, but when there is neglect and indiscriminate use of so powerful a drug as chloroform with so depressant actions seldom is anything of avail. Care in anesthesia must be the watchword first and always. I hope I make this plain to you all.

Purpura Hemorrhagica.—Adrenalin chloride has been of benefit in this disease. When the drug was administered internally further progress of the disease was rapidly checked and convalescence was rapidly established.

In conclusion, I wish to say that we may well be surprised when we reflect but a moment that with so powerful a remedy at our command and so extensively employed, no case of poisoning or great anxiety has ever been observed when it had been properly employed and in conservative dosage.

310 East Fifty-first Street.

THE "SPECIFIC THERAPY OF TUBERCULOSIS." [1]

BY CHARLES DENISON, A.M., M.D.,
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This splendid address of the distinguished Italian physician is an incentive to discussion.—However it is one which I hesitate to take up, with my limited knowledge of the subject. That limitation is my excuse for intruding. It suggests queries which I should very much like some experimentalist or laboratory expert to answer, if he will kindly do so. Though the subject seems to be purposely worked out on the *scrum-therapy* side, as against what I shall term the *direct toxin* side, there is much in Maragliano's experimentations and conclusions which agrees with and strengthens our beliefs as to the specific treatment of tuberculosis.

There is one important question suggested which needs to be settled; that is, Has the *indirect* serum method an advantage over the *direct* toxin method? Is not the latter method preferable, when properly selected and refined in technic, both as to quality and dosage? In other words, admitting the high development of both antitoxic and bactericidal elements which Maragliano claims in an animal serum, transference to a tuberculous infected body preferable in ultimate results to properly exciting this antitoxic power in the animal or man treated?

As an exposition of the *scrum* side of the tuberculosis treatment question, this paper is both the strongest and most authoritative I have any knowledge of. And yet we have to admit, throughout the whole of it, either an intentional or inadvertent ignoring of the work and views of those who would take the negative side of the above question.

For instance, much is made of the effects of the "toxins" of young cultures of bacilli to quote "the inflammatory and destructive action on the tissues with which they come in contrast, due to the 'necrotic acid' of De Schweinitz and Dorset," and he adds, "these poisons injected beneath the skin, they cause inflammation with purulent fibrinous exudation and bring about necrosis of the tissues," etc.

What is this "necrotic acid" and what quantities of the extracted poisons does he refer to as producing the inflammatory and necrotic effects?

Of course, everything depends on the size of the dose. Virchow found, post mortem, these necrotic results of reckless experimentation, and Koch himself (through insufficient limitation as to size of dosage) may have been largely to blame for many failures through similar effects. But it is manifestly unfair to present these gross results of massive doses as representative of the *direct* method of specific medication in tuberculosis.

Second, what will you say of Maragliano's claim of a "double series of poisons—the bacilli and the accompanying proteins?" Is it to be inferred that he claims such a mixed toxin is always used in the direct method? On the contrary, does not success come through the singleness and purity of the toxin used?

Third, is it true that the theory of "mixed infection" was first proclaimed by Prof. Maragliano? If so, certainly great credit is due him; for this period in the course of active tuberculosis is the most critical one in its history.

Fourth, several paragraphs have relation to the same question to which I wish to call particular attention. Maragliano says "The richest in antitoxic materials is the serum of a healthy man." Again, "the triple power of the blood serum, bactericidal, antitoxic and agglutinating, increases considerably if a healthy animal is injected with tuberculous matter." Again, speaking of the ordinary and extraordinary means of defense which the healthy animal organism possesses, he says, "The extraordinary means are also antitoxic and bactericidal and develop principally in the presence of tubercle bacilli that penetrate the tissues."

In view of such remarkable statements, the truth of which is not questioned, I want to ask where is the warrant for expecting any better effect from the antitoxin previously developed in another animal over and above that slowly created in a given diseased organism?

Maragliano says, referring to the materials of defense created by the inoculation of healthy animals with tuberculous matter, "From this was born, by a logical association of ideas, the suggestion of antituberculous serum-therapy." Was it not rather a birth of *hope* that the same curative result could be worked out of an antituberculous serum as that so brilliantly obtained from an antidiphtheric serum? Is not this expectation simply a theoretical assumption, since the two diseases, tuberculosis and diphtheria, are so dissimilar?

When the American Medical Association met in Baltimore, in 1895, and Dr. Paul Paquin brought three tuberculous patients from St. Louis to illustrate the curative results of his antituberculous horse serum, I invited him and Dr. Karl von Ruck to come over to my hotel, where we could quietly examine these patients with the stethoscope. Dr. von Ruck and I concluded, after a careful study of these cases, that we were unable to detect any evidence of other effect than the *transmission of tuberculin* through the horse's blood.

Afterward I experimented somewhat on my own account. I had a puppy injected every twelve hours with 2½ c.c. crude tuberculin (Koch's) and then, twelve hours after a total of 10 c.c. had been given, the little animal was killed and his blood, brain and glands made into a serum (?). On experimenting with this product it took me only a little while to see that I was getting a double (perhaps fermenting) effect and to abandon its use.

[1] Anent Prof. E. Maragliano's lecture, delivered before the Henry Phipps Institute, in Philadelphia, March 28, 1904. See Medical News, April 2, 1904.)

Then, again, after trying antituberculous asses' serum with only fair success, Fish's antituberculous horse serum was brought out with great expectations for its curative power. We understood that this serum was being crowded full of supposed antitoxic energy by increasing toxic doses injected into horses. I faithfully tried the advancing dosage, expected to confer immunity, and, on close observation of effects, determined to my own satisfaction that there was a *cumulative* process set up in patients treated. I suspected that this was due either to the excessive dosage of tuberculous toxin given the horses, or to obtaining the serum too soon afterward, or to some unsolved mystery which ought to discredit the plan.

Ever since that time I have not wanted in my therapy, any asses', goat's or horse's serum, with their uncertain constituents, unstable measures, and with their rash-producing effects, showing that there are present other ingredients than the antitoxin we are after! This objection holds, even if we admit that there is included a given quantity of antitoxin raised to a high degree of potency. Supposing it *is* there, the question is, does it excite in the injected invalid's organism a greater amount of defense, than the original toxin would if properly given?

The question is almost answered by the essayist himself when he explains that "this immunization is not wholly passive. It arises without doubt in the animal organism through the energies of the organism itself. The antibodies and the antitoxins exist in the blood of animals thus injected in much larger quantities than was injected." And again, in his finding "an increase of defensive substances in the blood of injected animals *greater than the geometrical proportion*" he is convinced "that the participation of the organism is *necessary* to this increase because it did not take place "in subjects that were very sick." Now, if we are to take Prof. Maragliano's dictum, that it is the injected organism itself that creates its own antibodies and antitoxins, what more do we want, except to know the minimum dosage, to which that organism is sufficiently susceptible, in order to create these defensive substances? If, as is true, we need diluents to get down to a safe and proper dosage, for the most favorable influence upon that particular organism, are there not liquids more antiseptic, germicidal and leucocyte producing, and at the same time more stable and certain in strength than any blood serum of any other animal?

It is "up to" the manufacturers of these *indirect* antituberculous sera to bring forward their proofs; for the refined tuberculin preparations (all of the culture fluid and everything possible except the toxins from the germ spores being excluded), are capable, under suitable conditions and technic, of accomplishing just what the best of those sera will do toward producing "new antitoxins or new antibodies."

Possibly some roundabout way, via-the-serum route, may suit cases unfit for the direct method. But, generally speaking, if resistance to tuberculosis is nil because of the destructive processes which have already culminated, and because the organism, what is left of it, is already supersaturated with toxin, it is useless to try anything on these specific lines.

But for curable or arrestible cases, Prof. Maragliano's conclusion applies as well to the *direct* (extract) as to the *indirect* (serum) method. He says, "For the rest, serum-therapy does nothing more than reproduce the process followed by nature in spontaneous cure, adding its good effects to those of hygiene."

Fifth. Even if time remained for the purpose, I do not know that I should want to take much of it in considering Prof. Maragliano's scheme for the "vaccination" of healthy persons to immunize them against tuberculosis. *Cui bono?* If a person does not have to have a disease why should he be vaccinated against it?

From my own conception of the nature of tuberculosis[1] we do not individually have to have it and it is sufficient to start in to fight it, or ought to be, when we get it. Why burden the organism with seeking an artificial immunity before the natural immunity, the gift of every one in health, is lost? I should as soon think of vaccinating against syphilis as against tuberculosis. But tuberculosis is vastly different in necessitating a peculiar susceptibility to it, which prerequisite is absent in the other infection.

This susceptibility being an essential part, we should perhaps look at tuberculosis as *a thing of degree*—a dyscrasia or entity which has consumed, say 10 to 20 per cent. of its course before that form of vegetable decay, the fungus-growing germ—the tubercle bacillus—reputed as the cause of the disease, has come into existence. The line of demarkation between such dyscrasia and actual infection is at least not a definite one. By the crude tuberculin test I have proved latent tuberculosis to exist in 47 out of 53 cases in which there was either no sputum to examine or only glandular and other suspicions of infection.

Let us say there has been an advance possibly of 20 to 40 per cent. more of the course of the disease by the time the "mixed infection" period determines a still further stage in this process of decay. What is going on is a constant battle between susceptibility and resistance to this toxic influence. If we were able to determine the faults of our civilization, which cause this susceptibility, we could better understand the character of this conflict; for then we would comprehend that this disease tuberculosis is but a natural harvest from such degenerate soil.

If we do not take our punishment for our unhygienic living in one form of degeneration we

1 See "Devitalized Air—Toxemia, a Prime Cause of Tuberculosis," read at the London Tuberculosis Congress, 1901. Nov. 9 and 16, 1901, N. Y. Medical Journal.

will have to take it in another. There must be some place where exhausted nature may lie down to die! It is my prediction that as we approach the eradication of tuberculosis, as some think we are doing, the mortality from associated degenerative processes, as from Bright's disease and cancer, will proportionately increase.

Since writing this paper my attention has been called to the following pertinent data gleaned from the report of the Northwestern Mutual Life Insurance Company: "Percentage of deaths from tuberculosis, from 1857 to 1897, 15.62; same from 1897 to 1904, 10.67. Percentage of deaths from nephritis, from 1857 to 1897, 4.89; from 1897 to 1904, 7.90. Diabetes from 1857 to 1897, 1.11; from 1897 to 1904, 2.08. There has been a slight decrease in pneumonia and a slight increase in cancer and diseases of the heart."

INTESTINAL ILEUS WITH STRANGULATION.

BY R. R. HUGGINS, M.D.,
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In spite of the fact that the symptoms and pathology of acute intestinal obstruction are so often discussed and brought before the profession, it is very evident, especially to one doing abdominal surgery, that many patients die every year because of delayed diagnosis, and as a result of this, late operative treatment. Every surgeon must be impressed by the large number of these cases which come under his care when the time for satisfactory operative measures has passed, and in spite of palliative treatment they either die or become subjected to prolonged and tedious convalescence. There is nothing in surgery which gives an operator as much comfort and satifaction as the result which follows the release of a piece of imprisoned bowel beneath a band of adhesions, the untwisting of a volvulus, or reduction of a hernia before strangulation, which are mechanical conditions, and without operative treatment mean certain strangulation of the bowel followed by peritonitis and death. Unfortunately, many of these cases are not seen early enough by the surgeon to realize this very happy and satisfactory result. Why is this true? I cannot believe it is because they are unrecognized or unsuspected by the average practitioner but rather that they do not adopt operative measures until they have exhausted all other means of relief. While this delay is sometimes advisable, the danger in so doing is very great because in these cases every hour of procrastination means a lessening in the prospect of recovery for the patient. If the symptoms are those of strangulation an exploratory laparotomy is much less dangerous than the expectant treatment.

Symptoms.—The symptoms of this condition as a rule are fairly typical. A patient previously well is suddenly sized with a pain in the abdomen which is more or less severe; oftentimes there is severe shock accompanying the onset of pain, this shock and collapse is said by Reichel to be due to the escape of bacteria and other products into the peritoneal cavity, these substances when resorbed produce the symptoms of collapse. Early nausea and continuous vomiting are the most characteristic symptoms, especially when preceded by pain and accompanied by obstipation, first the contents of the stomach are expelled, then biliary, and finally fecal vomiting ensues; neither gas nor feces are expelled from the rectum. In some cases if the abdominal wall is very thin the loop of bowel which is strangulated will be so greatly distended that it may be outlined by palpation, or it may be felt within the abdomen, upon rectal examination or sometimes a distended intestine may be apparent on the surface of the abdomen. There is the anxious face and a pulse increasing in frequency. These are the symptoms in the early stage; later, of course, there is paralysis of the intestines and general abdominal distention. The length of time until this occurs depends upon the degree of strangulation; if it be complete, gangrene may ensue in twenty-four hours or even sooner. If we can rule out acute appendicitis our diagnosis is usually certain, and I hold that an early laparotomy is to be advised in every suspicious case, because the danger in this is less than in the expectant treatment. I would also mention the necessity of careful examination for hernia in these cases.

I report four cases to show the marked contrast in the result between early and delayed operative treatment.

Case I.—Mrs. C., aged twenty-eight years. Seen in consultation with Dr. Anderson. Previous health good. Pregnant four months. Was seized suddenly with pain in abdomen referred to epigastric region, after a few hours localized to the lower right quadrant. I saw the case thirty-six hours after the beginning of attack; she complained of severe pain in region of the appendix, vomiting continuously, temperature about 100° F., pulse 110; on local examination extreme tenderness over the appendix and some rigidity of right rectus muscle. I could feel on palpation a distended loop of intestine in upper right quadrant of abdomen, bowels had not been moved. Made a diagnosis of appendicitis together with acute intestinal obstruction. The diagnosis of obstruction was based upon the continuous vomiting and distended loop of intestine. As we seldom see cases of simple acute appendicitis with such persistent vomiting, for so long a period, I concluded that an obstruction of the bowel had also occurred. The patient was removed to St. Francis Hospital, and the abdomen opened forty hours after the beginning of the attack; found the appendix in the state of acute inflammation, as yet unruptured, but contained about one-half dram of pus. The ileum was strangulated about 20 inches from the cecum, due to its imprisonment beneath a peritoneal band, probably the result of a former attack of peritonitis. The band was severed and the intestine freed; fortunately gangrene had not

yet set in and after the application of hot saline solution for several minutes the circulation was restored. In a few hours more a resection of the bowel would have been necessary, thus producing a very serious if not fatal complication. The patient left the hospital in three weeks, fully recovered, and was delivered of a living child five months later.

Case II.—This patient was seen in consultation with Dr. McIntosh. Child of ten months. Patient had been vomiting continuously for thirty-six hours. Cried without ceasing from the beginning of attack. No bowel movement after colon was evacuated, abdomen somewhat distended, temperature normal, pulse rapid. On examination could not outline any tumor through abdominal wall. Introducing finger into rectum I could feel a distended loop of bowel forced into the pelvic cavity. No blood had been discharged from the rectum. Diagnosis: Obstruction of the bowel from intussusception or a volvulus. Patient removed to St. Francis Hospital and operated upon thirty-eight hours after beginning of attack. Found a volvulus of the ileum, intestine very much discolored; in a few hours it would have been gangrenous. The twist seemed to be due to a long mesentery. Patient made a rapid recovery and left hospital in ten days.

In contrast to these I report two cases treated upon the expectant plan:

Case III.—Mr. R., aged forty-two years, was seen in consultation with Dr. McCullough, of Freeport, five days after beginning of attack. Abdomen enormously distended, pulse rapid and weak; vomiting continuous. No bowel movement since beginning of symptoms. Condition seemed hopeless; however, under local anesthesia, an opening was made into the bowel relieving the distention and freeing it from gas. Condition of the patient would not bear exploration sufficient to ascertain the cause of the obstruction. The bowel was stitched into the abdominal wound. Death ensued in eighteen hours. No autopsy.

From the severe pain and collapse, this was probably a volvulus.

Case IV.—Mr. G. Brought into the hospital six days after the beginning of symptoms. Abdomen distended to fullest extent. Vomiting and hiccough. General peritonitis. Peristalsis absent. No gas or feces had passed from bowel. Enterostomy. Lived four days. Autopsy. Old adhesions throughout abdomen as result of former peritonitis. Transverse colon bound down and strangulated by adhesions. Appendix 10 inches in length but not seat of acute disease, had probably caused former peritonitis.

Many cases similar to III and IV constantly occur in every community and could nearly always be saved by early operation.

The results of the above cases show plainly that it is very necessary to make a correct diagnosis early in the attack, and be ready, if possible, to carry out the proper surgical measures, before sufficient time has elapsed to cause serious pathological change in the strangulated intestines.

REPORT OF A CASE OF A LARGE PAROVARIAN CYST, AND TWO CASES OF LARGE OVARIAN CYSTS.[1]

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In view of the aggressive modern teaching of gynecology, large ovarian cystomas are comparatively rare; for these neoplasms are recognized early and submitted to early operative interference; unless they should fail to give rise to symptoms, and are accidentally discovered by the patient. This occurred in all three of the cases. These patients were operated upon within a period of eight weeks at the Samaritan Hospital last summer.

Kelly[2] gives the following table of 141 cases of large tumors of the ovary differentiated macroscopically in the operating room:

Multilocular ovarian cysts	38
Unilocular ovarian cysts	36
Parovarian cysts	22
Papillary tumors	20
Dermoid cysts	25

"A thorough sifting of this material, however, in the pathological laboratory has served to demonstrate the necessity of a careful microscopical examination in every case in order to establish the diagnosis on a scientific footing."

Case I.—F. O., single, twenty-one years of age, saleslady; was referred to the gynecological dispensary of the Samaritan Hospital, August 25, 1904, by Dr. Leon Van Horn, when the following history was obtained: Father and mother living, the former is forty-four years of age and in poor health, due to intestinal disease; the latter is forty-two years of age and in good health. Had one brother. There are two sisters living and one dead. During childhood the patient had measles and mumps. Puberty at thirteen, menses regular, painless, lasting five to seven days and profuse, last menstruation three weeks ago. When fifteen years of age she suffered from a very heavy cold which checked her menstruation. During the next five months she suffered constantly with pelvic imflammation. Since then there have been various attacks of oophoritis and vaginitis. About six weeks ago she noticed an enlargement of the right side of the abdomen, which has gradually increased. No pain. Sightly constipated.

Upon making a bimanual examination a very small conical cervix was found, displaced somewhat to the left. The entire right half of the pelvis was occupied by a fluctuating tumor which

[1] Read before the Obstetrical Society of Philadelphia, February 2, 1905.
[2] Operative Gynecology, Vol. II, p. 247.

extended up to the umbilicus. It was absolutely impossible to outline the uterus. This tumor was on the right side of the abdomen for its lower portion, but about midway between the pubis and the umbilicus; it extended to the left of the median line for about three inches. It was freely movable. A diagnosis of a unilocular, broad ligament cyst was made. The patient was admitted to the Samaritan Hospital July 31, 1904, and was operated upon the next day. Upon opening the abdomen the cyst sac was seen not to have the pearl gray color usually found in ovarian cysts, but was pink. A hand was introduced into the abdominal cavity and passed around the cyst which was found to be free from adhesions. The sac was tapped and emptied of a clear, light-straw colored fluid. Marked difficulty was experienced in dissecting out the sac from the broad ligament. When this was accomplished the floor of the pelvis was seen laid bare, and the ureter was found to be uninjured. There was troublesome bleeding from the pelvic wall which was not entirely controlled by ligatures and required a gauze packing. The opposite ovary was enlarged and contained a few follicular cysts, which were punctured and the ovary dropped back. The uterus was of the infantile type, and pushed well to the left. An uneventful recovery followed, the patient being discharged from the hospital three weeks subsequent to operation. Pathological diagnosis, unilocular parovarian cyst.

Case II.—R. J., thirty years of age, married, housewife; applied for treatment to the gynecological dispensary of the Samaritan Hospital, August 1, 1904, giving the following history: Father living and well; mother died at the age of thirty-seven from cardiac disease; two sisters and two brothers living and in good health. She had the usual diseases of childhood. Puberty at thirteen, menses regular, painless, lasting twenty-eight days. Has just finished menstruating. Married ten years, and has two children; normal labors and puerperiums. During the summer of 1903 she had a miscarriage, being about two months pregnant. During the latter part of December, 1903, she first noticed an enlargement in the left side of the abdomen, which has gradually increased but without discomfort. During the past week there has been pain in the left iliac region. Upon examination there was found an incomplete laceration of the pelvic floor; the uterus was in good position and freely movable. A large fluctuating, freely movable tumor was found on the left side above the pelvic brim. A diagnosis was made of a unilocular ovarian cyst of the left side. The patient was admitted to the Samaritan Hospital August 8, 1904, and operated upon the next day. After doing a Hegar's perineorrhaphy, the abdomen was opened. A cyst, free of adhesions, was found arising from the left ovary. The pedicle was long, and contained five twists; this was possibly the cause of the pain which she experienced during the week prior to operation. The sac was tapped and 3½ pints of a clear straw-colored fluid escaped. The pedicle was ligated and the cyst removed.

The opposite ovary was slightly enlarged and the seat of numerous small superficial follicular cysts. The cystic area was resected. Pathological diagnosis, unilocular adenocystoma. The patient made an uneventful recovery, and was discharged from the hospital on the nineteenth day.

Case III.—E. M., thirty-eight years of age, married, housewife. She was admitted to the Samaritan Hospital September 13, 1904, when the following history was taken: Father died at the age of sixty-nine years from pulmonary tuberculosis; mother living and well at the age of sixty-three years. She had the usual diseases of childhood. Puberty at eighteen, menses regular, painful, lasting three to four days. Last menstruation one week ago. Married thirteen years. She has had six children. All of her labors were normal excepting the fifth, which was instrumental. (I attended her in this labor and applied forceps owing to partial extension of the fetal head and its failure to engage at the superior strait.) The last child was born January, 1904. Subsequently to the birth of her fifth child she noticed a swelling of the abdomen, which gradually increased, and was attributed to being "a big stomach." When she became pregnant the last time the abdomen was so markedly enlarged that the physician who attended her thought she had a plural pregnancy, the cyst not being detected. The cyst did not interfere with this gestation or labor. After the birth of this child the abdomen rapidly increased in size. I saw her a few days before her admission to the hospital, when she consulted me for her abdominal enlargement. At that time there were no pressure symptoms, no inconvenience, and no interference with the gastric, respiratory or circulatory functions. She was slightly emaciated, but attributed this to her household work. Appetite good until the past few weeks; bowels regular.

The following measurements were taken:

Circumference at umbilicus	42	cm.
Circumference at the xiphoid appendage	33	cm.
Distance from xiphoid appendage to umbilicus	9½	cm.
Distance from umbilicus to symphysis pubis	10¼	cm.
Umbilicus to right anterior superior spine	11	cm.
Umbilicus to left anterior superior spine	9	cm.

Upon making a bimanual examination, an incomplete laceration of the pelvic floor was found. The cervix was in normal position, but it was impossible to outline the body of the uterus. Upon percussion, a flat note was elicited over the entire anterior wall of the abdomen, excepting very high up, where it was tympanitic. Tympany was also obtained deep down in the flanks. A diagnosis was made of a unilocular ovarian cyst of the right side.

The patient was operated upon September 14, 1904 (the day following admission to the hospital). Owing to the size of the cyst, and the possibility of complications, it was deemed best to open the abdomen first, and then, if the patient was in good condition, to do the plastic work on the pelvic floor. Upon opening the abdomen and introducing a hand, numerous adhesions were found between the cyst and the anterior abdomen wall. All of these with two exceptions were readily broken up, the latter were torn loose at the expense of the cyst sac, and required ligatures to control the bleeding. There were no adhesions laterally or posteriorly. The sac was tapped and seven liters of a clear straw-colored fluid evacuated. A small quantity of pseudomucin remained in the sac. The cyst was readily ligated and removed. The opposite ovary was sclerotic and was also removed. The uterus was found enlarged, and thought to be subinvoluted. As the patient was in good condition upon the completion of the abdominal operation, an Emmet's perineorrhaphy was done.

At the end of forty-eight hours, a slight vaginal bleeding occurred, unaccompanied by pain, followed in about three hours by the expulsion of a two months' fetus. As the abortion was incomplete it was necessary to empty the uterus. Owing to the absence of subjective and objective signs and symptoms of pregnancy, the abortion may be attributable to too much handling of the uterus. This patient made an uneventful recovery and was discharged at the end of three weeks. The following measurements were taken previous to her leaving the hospital.

Circumference at the umbilicus	29	cm.
Circumference at the xiphoid appendage	28	cm.
Distance from the xiphoid appendage to the umbilicus	6	cm.
Distance from the umbilicus to symphysis pubis	5	cm.
Umbilicus to right anterior superior spine	5½	cm.
Umbilicus to left anterior superior spine	6	cm.

Pathological diagnosis, multilocular adenocystoma. There were several small daughter-cysts on the inner wall, otherwise there were no trabeculæ or other evidence of the large sac having been multilocular.

Catgut was used throughout in each case for all ligatures and sutures. To all of these patients eserine salicylate was administered subsequent to operation. These patients have all been seen within the past three weeks. They are enjoying good health, and are increasing in weight.

The treatment of ovarian tumors is undoubtedly by extirpation as soon after the discovery of the tumor as the physical condition of the patient will permit. All of these patients were in good condition at the time diagnosis was made, and were operated upon as soon as a bed could be obtained for them. The reasons for early interference with ovarian growths are, the impossibility of deciding with certainty that the tumor is not malignant; the possibility of rupture at any moment; torsion of the pedicle with its disastrous consequences; inflammatory changes may supervene; adhesions may form and suppuration may take place, adding greatly to the gravity of an operation; with delay comes exhaustion, interference with the functions of the bowels and bladder; and, the probability of hydro-ureter from pressure. Also digestive respiration and circulatory symptoms.

Had it been possible to diagnose pregnancy in Case III, immediate operation was demanded just the same, because the cyst would have greatly interfered with the gravid uterus, and always implies exposure to the danger of rupture, infection and gangrene. Werder covers this point very nicely as follows: "When we consider the serious nature of the complication of pregnancy with an ovarian cyst and the safety and ease with which most tumors can be removed, no long arguments should be necessary in favor of the operative treatment of such complications no matter at what period the pregnancy and what size the uterus or condition the tumor. In fact, delay and procrastination seem to me much less excusable during pregnancy than at any other time, because the immediate dangers to the patient are much greater. That pregnancy is no contraindication to any necessary abdominal operation, is now well understood, and the results obtained at this time are equally as favorable as at any other time. Admitting then that the safety of the mother demands an immediate operation as soon as the diagnosis of ovarian cyst is made, what effect will this treatment have on the child? Abortion is not infrequently the direct result of the presence of an ovarian tumor, as shown by Remy, who found that among 321 cases of pregnancy complicated by ovarian cysts 55 or 17 per cent. aborted without operation. Among Orgler's 142 cases who survived operations, pregnancy was interrupted in 3 or 22 5/10 per cent., a result slightly in favor of the expectant plan of treatment from the standpoint of the child. Statistics of other operators, however, are more favorable, viz.: Bovee reports 38 cases of removal of both appendages with one maternal death followed by only four abortions or 12 6/10 per cent. The removal of both appendages therefore during pregnancy neither increases the danger to the mother nor does it increase the liability to miscarry; on the contrary, there is a smaller percentage of abortion then when treated without operation. The earlier the tumor can be removed and the smaller the gravid uterus is at the time of operation, the less will the progress of pregnancy be interfered with because a large gravid uterus will necessarily render the operative technic more difficult and will be subjected to more handling and manipulation and possibly injury, thus increasing the tendency to abortion. It has been fully demonstrated that the removal of one

or both appendages in itself exercises very little if any influence on the pregnant uterus; the safety of the child is therefore no contraindication to the operation."

MEDICAL PROGRESS.

SURGERY.

The Preparation of Catgut.—A simple and reliable method of preparing catgut, as described by C. E. Congdon (*Am. Jour. Obstet.*, January, 1905), is as follows: Take dry catgut in ten foot strands, test for weak points and irregularities and wind in a single layer on a glass cylinder such as an ordinary drainage tube. Secure each end and submerge in a 3 per cent. formalin solution. No. 4 is allowed to remain in four hours, No. 3 is allowed to remain in the solution three hours and five minutes. No. 2 for two hours and fifteen minutes, No. 1 for one hour and thirty-five minutes. The catgut is then removed and immediately places in running water for the same length of time that it has been in formalin solution. It is then dried and put away for future use. Catgut thus prepared may be sterilized for use by boiling and handled precisely like silk. The approximate time for which material thus prepared may be depended upon to furnish support to the tissues is as follows: No. 4, seven days; No. 3, five days; No. 2, three days, and No. 1, thirty-six hours. The employment of a five per cent. solution of formalin will cause the catgut to resist absorption twice as long as the use of the three per cent.

The Misuse of Tendon Transplantation.—Before undertaking this operation, the surgeon should always assure himself that the pathological process which furnishes the indication for the transplantation, must be at a standstill and not progressing. That sufficient care in selecting cases is not always shown, is the opinion of Oppenheim (*Berl. klin. Woch.*, February 13, 1905), who reports three cases in which operation was done where the palsies were due to progressive central lesions. The first of these was a case of progressive muscular atrophy, where the tendon of the relatively well functionating triceps suræ was split and grafted upon the peroneus longus without any favorable results no abduction of the foot being secured. In the second case a spinal form of progressive muscular atrophy was present as the result of a chronic anterior poliomyelitis. Here also, in spite of the progressive character of the disease, the tendon of the extensor hallucis longus was grafted on the tibialis anticus. In the third case, an elderly woman, there had been present for some time pain and weakness in one leg, for which a muscle transplantation was done, although similar symptoms were beginning in the other leg. No relief was secured and an examination by the author, three months later, showed that the trouble was due to pressure on the lumbosacral segments of the cord by a tumor which was probably malignant. This was confirmed by the X-ray. The duty of the orthopedic operator in such cases is evident, and in every case submitted for operation, the precautions already noted as to the character of the disease should be noted.

Results of Fourteen Hundred Operations for the Radical Cure of Hernia in Children, Performed at the Hospital for Ruptured and Crippled Between 1891 and 1904.—W. T. Bull and W. R. Coley (*Med. Rec.*, March 18, 1905) report in detail the results of 1,424 hernia operations, of which all but 20 were on children under the age of fourteen years. It has been the custom of the authors to treat all their cases of hernia in children, with certain few exceptions, for a period—usually one or two years—with a truss before advising operation. If at the end of this time no improvement is observed, operation is advised. Under the age of four years a very considerable number of cases of inguinal hernia, and nearly all cases of umbilical hernia, can be cured by truss treatment. Of the 1,424 operations reported, 1,354 were for inguinal hernia, 35 for femoral, 10 for umbilical, 8 for ventral, 2 for congenital hernia of the umbilical cord, 2 for epigastric, and 1 for lumbar hernia. The great majority of the operations for inguinal hernia were performed according to Bassini's method, using chromicised kangaroo tendon for suture material. In most cases an extra suture was placed above the cord. Excision of the veins of the cord seems unnecessary, at least in children. Operation without transplantation of the cord appears to give less satisfactory results, though this is not yet certain, owing to the disparity in the numbers of the cases treated by the two methods. Twelve operations were performed for strangulated hernia, and the cases show that strangulation is more common during the first two years of life than during the next decade. The seat of strangulation in every instance was the result of constriction by the tight external ring. Eleven relapses in all were noted, and the authors conclude that the majority of recurrences take place during the first six months after operation, and about 90 per cent. occur during the first year. A comparison of cases operated with and without rubber gloves shows suppuration in 4.4 per cent. without gloves, and 2.3 per cent. with gloves. There were four deaths during the series.

A Simple Heat Method of Sterilizing and Storing Catgut.—Willard Bartlett (*The Interstate Medical Journal*, No. 3, 1905). The treatment of raw catgut is as follows: (1) The strands are cut into convenient lengths, say thirty inches, and made into little coils about as large as a silver quarter. These coils in any desired number are then strung like beads on to a thread so that the whole quantity can be conveniently handled by simply grasping the thread. (2) The string of catgut coils is dried for one hour at a temperature of 180° F., and then for a second hour at 220° F., the change in temperature being gradually accomplished. (3) The catgut is placed in liquid albolene, where it is allowed to remain until perfectly "clear," in the sense that the term is used in the preparation of histological specimens. This is usually accomplished in a few hours, though it has been my custom to allow the gut to remain in the oil ocer night. (4) The vessel containing the oil is placed upon a sand bath, and the temperature raised during one hour to 320° F., which temperature is maintained for a second hour. (5) By seizing the thread with a sterile forcep the catgut is lifted out of the oil and placed in a mixture of iodine crystals, one part in Columbian Spirits (deodorized methyl alcohol), one hundred parts. In this fluid it is stored permanently, and is ready for use in twenty-four hours; the thread is then cut and withdrawn. It seems important that the gut should be thoroughly "cleared" before the oil is heated, in order that the temperature of the center of the strand becomes as high as that of the oil outside. It may be noted further that the oil is not removed from the gut before placing it in the storing solution. This is done purposely, since catgut which is perfectly free from oil is so very sensitive to the action of water that it readily untwists and becomes tangled after it is used in a

wound but a few moments. This storing fluid simply takes off enough oil from the exterior of the strand so that it is not too slippery for use, and the albolene being a bland, non-irritating substance, there is no reason why it cannot be safely left in the gut. The iodine rapidly permeates the strand; the same will be found stained black after a few hours, and consequently the surgeon will have the assurance that he is introducing an antiseptic as well as a thoroughly sterile suture material.

MEDICINE.

City Dust and Patent Medicine Advertisements.—Robert Hessler (*Am. Med.*, March 5, 1905) traces the relationship existing between the amount of infective dust in a city and the number, kind, and size of patent medicine advertisements in the newspapers. City dust differs from country road dust in the presence of spittle. In spitting and in taking patent medicines we certainly excel. Medical advertisements may be divided into three classes: (1) Patent medicines proper, of unknown composition and proprietary. (2) Those of quacks. (3) Of lotions, pennyroyal pills, syringes, etc. Patent medicines can be divided into groups, according to their use; the largest group may be designated as the dust group, because it refers to diseases and conditions that depend on infective dust. In patent medicine advertisements there is a large list of names that in most instances, when applied by the laity in self-diagnosed cases, must be regarded as synonyms of dust infection; among these names are the following: Catarrh, colds, cough, grip, tonsillitis, pleurisy, rheumatism, backache, kidney disease, lumbago, muscular rheumatism, nervousness, biliousness, etc. Their names may be grouped by marking names of respiratory affection like catarrh, colds, cough, in red; those referring to rheumatic conditions in blue; nervous conditions in yellow, etc., a general idea of this dust group of patent medicine advertisements may be obtained. The amount of space occupied by medical advertisements varies greatly in different papers and in different countries. In Indiana newspapers the amount varied from 2.5 per cent to 14.5 per cent.; dust advertisements varied from one per cent. in a comparatively city up to ten per cent. in a dusty one. When one-eighth of the total space of a newspaper is occupied by patent medicine advertisements, whose existence rests mainly on the condition of the streets and sidewalks it may be well to inquire if there is not something wrong with that municipality. There is also a seasonal variation; low ebb is reached in the summer, high tides occur in the fall and spring. The hot rays of the sun and street sprinkling in the summer and the lack of free ventilation in winter are powerful factors. Patent medicine men may not know why their nostrums are in demand, but they know that it pays to advertise in certain towns—dusty towns, and where the spitter is unmolested. What the people save by not keeping their city clean they are compelled to spend in a vain attempt to counteract the evil influence of the dust.

Digestion of Caseins and their Relation to Certain Problems in Infant Feeding.—T. S. Southworth (*Med. Rec.*, March 4, 1905) says that the nature of casein digestion is an important feature in the management of artificially-fed infants that has not received the consideration it deserves. Hammersten's erroneous conclusions have been copied and accepted without question by so many authors that it is only very recently that it has been shown that much of the teaching of the past requires recasting. The ferment first formed in the stomach of the young is the rennet ferment, which changes casein into paracasein. At first this is digested in the intestine, but as hydrochloric acid begins to be secreted this combines with the paracasein, forming hydrochloride of casein, which is fitted for peptic digestion. The greater the amount of acid present, the tougher will be the curd; but at the same time more pepsin is secreted, so that as the infant develops the work performed by the stomach is regulated automatically. An excess of acid causes the formation of a less digestible dihydrochloride of paracasein; but if the acid is so abundant that some of it is uncombined, or free, the new substance is readily digested. The presence of lactic acid in sour milk may greatly modify the digestive processes in the infant's stomach, and this question, as well as the rationale of adding alkalies to food mixtures, is discussed in detail by the author.

Acne and Its Treatment.—G. T. Jackson (*Med. Rec.*, March 18, 1905) says that acne is even commoner than eczema, and that while it is true that the disease is often stubborn, the majority of cases can be greatly benefited in a short time, and very many of them cured promptly. The indications for treatment are as follows: (1) Improve the condition of the skin, so that it will no longer be a suitable culture ground for the bacillus. (2) Empty the follicles of the skin of the colonies of bacilli. (3) Keep the skin constantly aseptic, so that any bacilli that escape on it will be killed, and no new infection of the skin will be possible. The first indication is met by attention to the patient's general health by means of baths, diet, exercise, attention to hygiene, and lastly, drugs. The follicles are emptied by the use of the curette, the acne lancet, and the comedo expressor. The best local application is sulphur, preferably in the form of the old lotio alba, the formula for which is: Zinc sulphate and potassium sulphuret, of each, ʒi-ii; rose water, q. s. ad. ʒiv. This is to be shaken up before using. Resorcin is also useful, as well as sulphur soap. The use of the X-ray should be limited to intractable cases, and requires great caution to prevent doing harm.

Cholecystitis as a Complication of Lobar Pneumonia.—J. M. Anders (*Am. Med.*, March 18, 1905) reports three cases. Although an analysis of these cases does not warrant drawing any general conclusions still the clinical observations may serve to direct attention to cholecystitis as a complication in rare cases of lobar pneumonia. The local symptoms and physical signs are characteristic, but the type of the condition is not severe. It is to a great extent overshadowed by the pneumonic condition. Although no general or constitutional symptoms, distinctive of the lesions, are recognizable, Anders is pretty fairly convinced that the clinical course of pneumonia cases is not, as a rule, materialy modified by the complications of catarrhal cholecystitis except in cases in which chronic hepatic disease existed previously, when the toxemic symptoms may be intensified by the development of an acute, widespread cholangitis and cholecystitis. Two of the cases terminated in recovery but Anders states this result was not due to any special method of treatment, as attention was mainly bestowed upon the serious primary affection. A mild saline laxative was employed in one of the cases and small doses of mild mercuric chlorid in the other. In the case which terminated fatally nothing but the general treatment of the pneumonia was carried out, because the grave pneumonic features

and the cardiac and pulmonary complications called for active measures.

Urine Examination.—I. R. C. Cabot (*Journal A. M. A.*, March 18-25) states that incited by a statement of Council man that the chemical and microscopic examination of the urine failed to give certain information of the character of the renal lesions, as well as by discrepancies coming under his own observation, he has compared critically the records and post-mortem findings in the cases that have come to autopsy in the Massachusetts General Hospital since 1893. Although the number of cases is not large, he thinks they warrant the following conclusions: (1) Many cases of acute glomerular nephritis occur and are unrecognized by any known methods of examination. (2) The diagnosis is at fault in some cases of subacute and chronic glomerular nephritis, but in the great majority of cases the condition of the urine, taken in connection with other symptoms, foretold the autopsy findings. (3) In chronic interstitial nephritis the diagnostic resources appear to be neither so sufficient as in the chronic glomerular form, nor so inadequate as in the acute glomerular nephritis. In about a third of the cases the diagnosis was correctly made before death. (4) Among other conditions mistaken for nephritis by too much reliance on the urinary findings are senile and arteriosclerotic condition, mistaken for chronic nephritis, while in conditions involving passive congestion or acute kidney degenerations, the urine occasionally simulates that of acute nephritis. Even where no lesions are found at autopsy the urine is sometimes highly albuminous and full of casts. (5) In ordinary urinary examinations the common errors are: (*a*) The attempts to estimate urea without accurate knowledge of the patient's metabolism. (*b*) Stating that renal cells are present when all that is seen are small mononuclear cells, perhaps from the kidney tubules, perhaps not. (6) Cryoscopy and other attempts to test the renal permeability more directly are not yet capable of supplementing in clinical work the older methods of examination. Cabot holds that the vast majority of estimations of urinary solids, including urea, are a waste of time, since they are not and can not be made part of a general metabolism experiment, and that the attempt to estimate the anatomic condition of the kidney by measuring albumin and by searching for casts is fallacious. The most reliable data are the twenty-four hour quantity, the specific gravity and the color.

PHYSIOLOGY.

Physiological and Pharmacological Investigations on the Uterus.—The uterus when removed from the body reveals a number of important phenomena which indicate that it has an inherent set of capacities independent of the rest of the economy. E. M. Kurdinowski (*Arch. f. Anat. und Physiol.*, December 28, 1904) finds that at all periods of the sexual life, the womb is endowed with an automatic contractility. This is true of the virgin uterus also. This automaticity exhibits itself in waves separated by pauses. The uterus reacts to mechanical and thermic stimuli, but is only slightly susceptible to electrical stimuli. Toward the end of pregnancy the exsected uterus is capable of parturition. The broad and round ligaments take a useful part in the general contractions of the organ. The uterus is but little dependent upon the central nervous system. The isolated organ presents peculiar advantages for the investigation of the pharmacology of the uterine drugs. Hydrastinin causes independently of the nervous system a tetanic contraction of the uterus. So far as this drug affects the blood vessels of the uterus, it does not cause this narrowing by acting locally, but by acting upon their governing nerve-centers. Sphacelic acid acts similarly to hydrastinin. Adrenalin, even in the smallest doses, causes a powerful reaction, producing an increased contraction of a tetanic character, and also increasing uterine irritability. It narrows very markedly the uterine vessels. Narcotic poisons of the fatty acid series (chloral hydrate and alcohol) have relatively little effect on the isolated uterus. Only relatively large doses of these poisons paralyze the contractile power of the organ.

Ligature of the Pancreatic Duct.—It has been found by W. Lombroso (*Jour. de Physiol.*, January 15, 1905) that ligature or excision of the duct of Wirsung does not necessarily lead, at least in the dog, to atrophy or sclerosis of the pancreas, although frequently either one of these changes may partially occur. This supports the view that besides its digestive secretion, the pancreas has another function which persists after its digestive activity has been abolished.

The Participation of the Acini in the Internal Secretion of the Pancreas.—The injection of oil into or the ligature of the duct of Wirsung, causes an increase in the glycolytic power of the blood. This was shown twelve years ago by R. Lepine (*Jour. de Physiol.*, January 15, 1905), who now finds that the increased pressure in the pancreatic ducts has hardly any effect upon the islands of Langerhans. It would appear, therefore, as if the ligature of the duct of Wirsung augments the glycolytic power of the blood only by compressing the cells of the acini, thus causing them to pour their secretion more copiously into the blood-vessels. This research tends to belittle the rôle of the islands of Langerhans in the elaboration of products that favor glycolysis, giving this function to the cells of the acini. There is some evidence, not yet published, that trypsin is not without influence on glycolysis.

Alkalescence of Blood.—Various methods are in vogue for determining the alkalinity of the blood; some enable an estimation of the total alkalinity, while others disregard the basic principle in union with the proteids and only give an idea of the inorganic alkali present. By careful experiments, A. Landau (*Arch. f. exp. Path. u. Pharmak.*, Vol. 52, Nos. 3 and 4) has shown that only the former methods (especially titration with acid and lackmoid as indicator) gives valuable results, since in acid intoxication, part of the acid will also replace the proteid alkali, so that this factor should not be disregarded. The author proceeds as follows: Five c.c. of blood are mixed with a small amount of sodium oxalate and then titrated with one-twentieth normal sulphuric acid, using lackmoid as indicator. Fifty-four per cent of the total alkali was found combined with proteid and the remaining 46 per cent. express the mineral alkalescence in normal rabbit. When rabbits were poisoned with phosphorus or hydrochloric acid, the total alkalescence was much less, but the proportion between organic and mineral alkali remained about the same. The acid united to the proteid is apt to do more damage than the acid combined with inorganic bases since it will be excreted less readily.

Properties of Hirudin.—Hirudin, an active principle obtained from the heads of leeches, has recently been introduced to prevent the coagulation of blood, and the experiments of A. Bodong (*Arch. f. exp. Path. u. Pharmak.*, Vol. 52, Nos. 3 and 4) prove that

this substance is indeed a great help in physiological experiments. Blood which remains fluid owing to the addition of hirudin, cannot be made to clot again, even if strong styptics, such as chloride of iron, are employed. The relation between hirudin and the principles which bring about clotting in the blood, seems to be a definite one, so that the necessary amount may be calculated for every given proportion of blood. If clotting has once started, the addition of hirudin will inhibit the process. Injected into animals, hirudin will not materially influence circulation or respiration and toxic symptoms were never observed. If 23 milligrams per kilogram body-weight are employed, clotting will not occur until one hour after injection; with 51 milligrams, this period will be lengthened to four hours. The excretion occurs chiefly through the kidneys, so that the urine of animals treated with hirudin will also inhibit clotting.

Effects on Heart Rate and Blood Pressures of Severe Hemorrhage and Subsequent Infusion of Sodium Bicarbonate.—As the result of a primary hemorrhage in the dog, the pulse rate is much increased, according to P. M. Dawson (*Jour. of Exper. Med.*, February 25, 1905). This acceleration depends upon the extent of the tonic activity of the vagus at the time the bleeding was begun. Secondary hemorrhage is followed either by no increase at all, and sometimes by a diminution of pulse rate. Hemorrhage causes a fall of blood pressure, but the extent of the fall does not depend closely upon the amount of blood withdrawn. If sodium chloride be infused after severe hemorrhage, the immediate effect is an increase of the blood pressures, of which the systolic pressure is the most nearly restored to normal. If, now, to solutions of the chloride an increasing percentage of sodium bicarbonate be added, the rise in the pressures is markedly increased. The addition of one-half per cent. bicarbonate to the chloride causes a maximum rise in the blood pressure, which may reach 115 per cent. of its original value. One must be cautious in drawing inferences with regard to the clinical value of infusions of sodium bicarbonate. The experiments indicate that the addition of sodium bicarbonate to the infused fluid may be expected to have a beneficial action. In extreme cases of shock due to loss of blood, the addition of from one-half to one per cent. of the bicarbonate to the solution of .8 per cent. sodium chloride may be of advantage. The rise in all the pressures, especially the diastolic pressure, is more pronounced than when the pure chloride is used. The quantity of fluid required is smaller than is the case with the pure chloride, and hence the greater is the rapidity with which the solution can be hurried into the circulation, a matter of some importance in desperate cases. There is, however, a possibility of overworking the heart. The author suggests that in the beginning the intravenous infusion should contain bicarbonate, but later it might be omitted.

Certain Aspects of Experimental Diabetes.—The results obtained by Herter in inducing glycosuria by means of painting the surface of the pancreas with adrenalin have been also obtained by F. P. Underhill (*Amer. Jour. Physiol.*, February, 1905), who painted the pancreas with piperidine. The author found that the same results are obtained by painting the spleen; by intraperitoneal injection, or by direct introduction into the blood. He believes that the experimental diabetes is not due to an irritant action upon, or an "insult" to, the pancreas. The action of piperidine and other drugs in this respect is not specific. Glycosuria is provoked by piperidine, potassium cyanide, ether, chloroform, morphine, carbon, monoxide, strychnine, pyrogallol, pyrrol, pyridian, coniine, nicotin, curare, etc. A tentative explanation is advanced that these drugs produce glycosuria by acting, not in the pancreatic cells, but in the respiratory center in producing dyspnea. The latter calls forth a marked glycosuria without the intervention of drugs. The administration of oxygen in the experimental diabetes produced by piperidine, inhibits the sugar output. The conclusion is reached that experimental diabetes is due to diminished oxidation of carbohydrate material; with the consequent accumulation of the latter in the blood and its elimination by the kidneys.

The Laws Governing the Chemical Composition of Urine.—A careful study of twenty-four normal urines secreted under different standards of diet revealed interesting results to O. Foller (*Amer. Jour. Physiol.*, February, 1905). The distribution of the nitrogen in urine among urea and the other nitrogenous constituents depends on the absolute amount of total nitrogen present. The distribution of the sulphur among the three chief normal representatives—inorganic sulphates, ethereal sulphates and "neutral" sulphur—depends on the absolute amount of sulphur present. The part played by the kreatinine as a factor in the relative distribution of the urinary nitrogen is of great interest. The absolute quantity of kreatinine eliminated in the urine on a meat free diet is a constant quantity for different individuals, but wholly independent of quantitative changes in the total amount of nitrogen eliminated. When the total amount of protein metabolism is greatly reduced, the absolute quantity of uric acid is diminished, but not nearly in proportion to the diminution in the total nitrogen, and the per cent. of the uric acid nitrogen in terms of the total nitrogen is therefore much increased. With pronounced diminution in the protein-metabolism, there is usually, but not always, a decrease in the absolute quantity of ammonia eliminated. Urea is the only nitrogenous substance which suffers a relative as well as an absolute diminution with a diminution in the total protein-metabolism. In ten different cases the author was able to reduce the amount of urea 60 per cent. of the total nitrogen. The urinary indican is not to any extent a product of the general protein-metabolism, is therefore probably, as is generally supposed a product of intestinal putrefaction, and may consequently be assumed to indicate approximately the degree of putrefaction in the intestinal tract. The ethereal sulphates can only in part be due to intestinal putrefaction, but they represnt, on the contrary, a form of sulphur metabolism which becomes more prominent when the food contains little or no protein. The volume of urine eliminated depends directly upon the amount of water consumed. The greatest volumes of urine frequently occur on days when the body gains in weight. The volume of urine eliminated in normal persons is largely a personal peculiarity, and is probably to a great extent inversely in proportion to the amount given off through the pores of the skin.

PATHOLOGY AND BACTERIOLOGY.

Pathology of Gout.—In two cases of gout that had died owing to a chronic interstitial nephritis, F. Rosenbach (*Virchow's Archiv*, Vol. 179, No. 2) found the characteristic changes of gout, namely necrotic areas with deposits of crystals of uric acid, in the bone and bone-marrow as well as in the usual sites. In the bone a disintegration of ground-substance was found, which can only be a result of the chemical action

of the acid; the bone-marrow on the other hand shows a proliferation of dense fibrous tissue which was infiltrate with lymphocytes and giant-cells. It is probable that even in the usual locations, the necroses are the real and primary lesions and are not the manifestations of atrophy secondary to the deposit of the crystals.

Treatment of Night-Sweats.—One of the most disagreeable symptoms of early pulmonary tuberculosis is nocturnal perspiration, since it robs the patients of sleep and weakens them considerably. The cause of these night-sweats is not known, but they are probably a result of the action of the toxins of the tubercle bacillus on the central nervous system. According to H. Ulrici (*Therap. Monatshft.*, December, 1904) the treatment is very unsatisfactory and hence the number of drugs recommended, legion. Antipyretics and atropine have been warmly recommended but the former very often aggravate the condition while a tolerance is very soon established for the latter. Agaricin is very uncertain in its action and may cause diarrhea and the same applies to camphoric acid and its compounds. The author has invariably seen the best results after the use of veronal in doses of 0.3 grm., rarely increased to 0.6 grm. In conjunction with this, the patient should sleep in a cool room with open window and use one of the many dusting-powders recommended.

Effect of Altitude on the Blood.—In order to study the effects of a high altitude on the blood, K. Bürker (*Münch. med. Woch.*, February 7, 1905) analyzed the amount of iron contained in the organs of animals in the mountains as compared with control animals. Even after a short stay in the mountains, a marked reaction is noticed since both liver and blood soon become rich in iron. Probably reserve depots are opened and more hemoglobin is passed into the blood; since this is used up more rapidly, more iron will be deposited in the liver. After the second or third week the hemopoetic apparatus will cease its overproduction and the liver will now give up its iron to the blood. As a result, the iron contents of the blood will gradually increase, while those of the liver will first rise and then fall. This observation is in perfect accord with the result of blood-counts made at high altitudes. The chief stimulant is probably the rarefied air, but it is also likely that radio-activity, which is present to a marked degree in the mountains, plays a prominent part.

Eosinophilia in Anchylostomiasis.—In 500 cases of anchylostomiasis examined by H. Bruns, D. Liefman and V. Mäkel (*Münch. med. Woch.*, February 7, 1905), an increase of eosinophiles over five per cent. was found in 92.1 per cent. In only rare instances more than 20 per cent. were found and in one case 42 per cent. were counted. The blood was obtained from miners who had eggs in the stools and from such who were supposed to be cured and whose feces were no longer infected. There does not seem to be any definite relation between the degree of infection and the number of eosinophile leucocytes in the blood and it is probable that a high percentage of the latter persist half to one year after all worms are expelled. The examination of the feces is preferable to the blood examination since it is more rapid where a large number of individuals is concerned and since it will not include among the positive cases those who are already cured. The blood examination is, however, of value in detecting deception; thus, if many eosinophiles are found and the repeated examination of the feces is negative, the stool should be voided in the presence of a responsible person. Where no eggs are found in a very suspicious case, the entire stool may be placed in the incubator for several days to permit the larvæ to develop.

Ultramicroscopic Examinations.—Further examinations have convinced L. Michaelis (*Virchow's Archiv*, Vol. 179, No. 2) that various dyes behave differently when examined with the new ultramicroscope. Thus, fluorescent solutions never show the presence of small particles no matter how high the magnification, while the very opposite holds with the sulfo-acids with large molecules (indulin, aniline blue, etc.). An intermediate position is occupied by fuchsin, picric acid, etc.; that is, numerous particles are seen but the great majority are too small to give separate impressions. It seems that those dyes which are held in finest suspension possess an elective action to either nucleus or protoplasm while those in coarsest suspension stain more diffusely. The instrument is hardly applicable for the study of stained specimens since all solid particles are surrounded by rings of colored light which makes their identification difficult. In blood films the author has, however, been able to see very small basophile granulations which could not be identified with the usual methods. Albumin in solution behaves like fuchsin, that is, a portion appears in the form of fine granules while another portion is not rendered visible by even intense focal illumination. It is for this reason that quantitative estimations of albumin are not reliable if conducted with the ultramicroscope, as has been recommended. The character of the solution in which the albumin is suspended is also of importance. Thus, with distilled water more particles will be visible than with physiological salt solution, even if the concentration of the albumin is exactly the same.

Origin of Acute Miliary Tuberculosis.—All the autopsy records of four years were carefully investigated by H. Silbergleit (*Virchow's Archiv*, Vol. 179, No. 2) in order to decide how a local tuberculous process generally becomes disseminated. In 95 per cent. of the cases tubercles of the vessels or of the thoracic duct were found which had permitted the bacilli to gain the blood-stream. It is well known that Rippert strongly opposes this theory since he has frequently hunted in vain for tubercles large enough in the walls of the vessels in his cases, to account for the large number of metastatic deposits in the body. Furthermore, he states that the focus is not always ulcerated and that the different size of the tubercles especially in the lung argues for a different age. It seems more probable to him that an active proliferation occurs into the capillaries and that the blood is constantly contaminated from this source. The author states however that the capillary focus is generally inadequate and that it is often present even where there is no miliary tuberculosis. The unequal size of the tubercles is due to the fact that the same number of bacilli is not transported to all parts of the body and that different tissues do not permit an equal development.

THERAPEUTICS.

Serumtherapy of Pneumonia.—The antipneumonia serum of Römer was originally intended for the treatment of ulcus serpens, which is usually caused by pneumococci. The serum is polyvalent in two senses, in that it is a mixture of the sera of different animals, treated with different strands of cocci, pathogenic to man. H. Passler (*Deutsch. Arch. f. klin. Med.*, Vol. 82, Nos 3 and 4) has tried it in 24 cases of lobar pneumonia and reports as follows: One to six doses were injected, varying from 10 to 30 c.c.; the largest total amount employed was 110

c.c. An injurious action was never seen. An improvement in the general condition was almost always observed directly after the injection and the temperature generally dropped after six to twelve hours. A migration of the process was not common, but the serum never retarded the consolidation in the affected lobe. A pronounced symptom was the remarkable improvement in circulation: when pallor, cyanosis and feeble heart-sounds were present, the serum frequently restored normal cardiac action. Pleural complications were present in a few cases, but never assumed marked proportions. The number of leucocytes usually remained unaltered before and after injection. Pneumococci could be grown from the blood in six cases; of those, three died and three recovered. Altogether, the disease was fatal in four cases. The author believes that the serum undoubtedly affects the pneumonic process, for complications are less frequent and the crisis seems to appear earlier. He concludes by stating that its use is not indicated in all cases since it is too expensive and there is no advantage in giving it early. In severe cases a trial is however in place, especially if the germs can be recovered from the blood or if the hyperleucocytosis changes to hypoleucocytosis. A diminished, vital resistance, such as is found in the aged, in alcoholics or in those suffering from cardiac failure, is also an indication. In threatening cardiac paralysis and pulmonary edema, the serum may do more good than any other form of medication. If the first injection is without effect, little is to be expected from a second, but improvement, even if only temporary, will call for a repetition.

The Limitation of the Value of Nitroglycerin as a Therapeutic Agent.—H. P. Loomis (*Med. Rec.*, March 18, 1905) has tested the effect of this drug on arterial pressure in patients by means of the sphygmomanometer, and also in animals, and finds that high arterial pressure in man is not perceptibly affected by it nor is dilatation of the blood-vessels apparent. Some of the conclusions reached are as follows: The usual dose of nitroglycerin of 1-100 grain is too small to produce any effect in pathological conditions; 1-50 grain is a minimum dose. It is a perfectly safe drug to use. Even in large and repeated doses the author has never seen any ill-effects. Its effects are very transient, as shown by the experiments on the dogs, and the ordinary dose of 1-100 grain every four hours could not possibly have any effect on the arteries. Nitroglycerin is said to increase the quantity of urine in chronic Bright's disease, but after keeping accurate records of the daily amount of urine passed, the author was never able to satisfy himself that any increase seen was due to this drug. In conditions due to arterial spasms, so-called, such as angina pectoris, migraine, asthma, nitroglycerin may be of benefit, in full doses often repeated, but not in arterial sclerosis where the arteries themselves are more or less changed.

Pyramidon in Tuberculosis.—The fever of consumptives is managed as follows by R. Schulz (*Zeitsch. f. Krankenpflege*, November, 1904): As soon as the patient reaches the hospital he is put to bed. If the fever does not disappear spontaneously after five to six days, he receives 5 grains of pyramidon in half a glass of water, which he is instructed to swallow slowly during half an hour after his midday meal. If effective, the dose may be diminished after several days, while sometimes it may be necessary to give more. With inverse type of fever, the drug must be administered during the early morning hours. Bad after-effects are rare and never amount to more than urticaria, profuse perspiration or darkened urine. A marked improvement will be noticed in the condition of the patients as soon as the fever has disappeared; they will increase in weight rapidly and the process in the lungs will tend to recede.

Toxicity of Cresols.—With a number of animals (frogs, mice, rabbits, cats) examined by K. Tollens (*Arch. f. exp. Path. u. Pharmak.*, Vol. 52, Nos. 3 and 4), the three isomeric cresols behaved differently. Paracresol is decidedly more poisonous than carbolic acid for both carniverous and herbiverous warm-blooded animals; orthocresol is equally as toxic as carbolic acid but metacresol is less toxic. In frogs, however, all three cresols are less toxic. A number of crude and saponified samples of cresol on the market were also examined. Contrary to the usual statements, they gave rise to the same symptoms in about the same dosage as carbolic acid and some of the crude samples even exceeded the latter in toxicity. The presence of soap does not seem to diminish the intensity of action and the same is true for carbolic acid for the latter plus soap, introduced into the stomach of an animal, kills just as rapidly as carbolic acid alone.

Hermetine, a New Antiseptic.—The beneficial effects of sea-bathing may in some cases be due to active therapeutic properties of the water. M. Legourd (*Repert. de Therap.*, February, 1905), in the gynecological service of Dr. Lebloud at Saint-Lazare, calls attention to the new and powerful antiseptic, hermetin. This is merely sea-water which has undergone electrolysis. It contains oxygenated compounds of chlorine in a nascent state. It is non-toxic, neutral, and from the viewpoint of its large content in chlorine, it is not to be distinguished from Labarraque's solution. The author reports favorable results from the use of this antiseptic in affections of the vulva, vagina and uterus.

PRESCRIPTION HINTS.

Treatment of Acute Coryza.—

℞ Phenic acid 3i
Liq. ammonia 3i
Proof spirits 3ii
Water 3iv

Pour 20 drops on blotting paper and breathe the vapors through the nose every hour.

Or

℞ Boric acid 3i
Menthol ..... grs. x
Cocaine ..... grs. v
Proof spirit ..... ♏v
Talc powder 3ii

To be used as snuff.

℞ Iodide of sodium 3i
Syrup of bitter orange ..... ℥i
Syrup of lemons ..... ℥i
Water 3vi

A tablespoonful three times a day in milk.

Bronchial Asthma with Emphysema.

℞ Euquinæ ..... gr. v
Atrop. sulph ..... gr. 1/150
Dionini ..... gr. 2/3

Dr. tal. doses No. xii. Sig: 1 powder three times a day.

℞ Iodipini ..... ℥ iii
Ol. menth. pip. ..... gtts. v

Sig.: Teaspoonful three times a day.—Bjorkman.

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SATURDAY, APRIL 1, 1905.

ANTIVIVISECTION.

The New England Antivivisection Society, like other "antis" which might be named, appears to be drawing its last useless breaths, and that without the use of any anesthetic (even curare), strange as it may seem. It, or at least its activity, so baneful to human and animal weal, seems to be exhausted. This is mainly because its diet of misrepresentation and of zoophilistic hysteria no longer nourishes in the atmosphere of public and legislative opinion which begins, at last, really to understand that the physicians and physiologists of Massachusetts are not criminals, but rather ill-paid benefactors to mankind.

At the hearing of the seventh or eighth proposed antivivisection bill on March 7 and 8 before the Committee of Probate and Chancery of the Massachusetts Legislature, M. W. Green, the president of the society, was not present, nor was the obvious high-priestess of the movement, Mrs. Ward, although the latter sent her usual contribution to the antivivisectional literature, and it was read by an uninformed clergyman, with the usual benefits to the cause of animal experimentation. Then, as always, emotion failed to fill the yawning chasm which the lack of facts revealed. The same old recital of statements as to things which perhaps took place in Europe forty or fifty or sixty years ago, before the discovery of anesthetics, was listened to—respectfully almost, and one heard of fancied cruelties which would make the spirit of Tiberius Cæsar groan with pity, and to the unsupported but oft-repeated assertion that these things were taking place to-day in the laboratories of Harvard University and of Tufts College, under the oversight of men like President Eliot and the late President Capen. Yet no single instance of any cruelty in the colleges of Massachusetts or of America was shown. Dr. Leffingwell came up from New York apparently to say that he had, many years ago, when younger, done experiments on animals himself, and that to-day cruelty was rampant. Ex-Governor Brackett said that he had never seen any animal experimentation himself, but that he understood that the medical profession, in its researches on animals, was unspeakably cruel. The editor of the *Transcript* spoke feelingly of Professor Osler's famous joke and remarks, and used them as a basis for supposing the existence of cruelty in experiments on animals. And so for nearly three hours the committee of eleven lawyers were entertained.

The next day for three hours this committee heard the other side, and they heard facts and not stale and long-refuted suspicions, science and not mere hysterical sentiment. The prominent surgeons, the hospital superintendents, the State boards of health and of cattle commissioners, nearly all the city and town boards of health in the State, practically all the colleges, practitioners—all these told them so much of accomplished fact and future promise from animal experimentation that it made an impression. One or two members of the committee who came with anti feelings went to luncheon with a sort of respect even for a physician who was a vivisector, and a few days after helped to swell the majority against a favorable reporting of the bill. Thus it was that the committee, by a vote of nine to two, reported the usual "leave to withdraw," and the two said not a word.

The fund which it is reported has been given to carry on the agitation continually, will likely enough insure a further officious effort on the part of Lawyer French next spring, but the soul of the movement probably is dead, killed by facts and common sense. Soon the Great and

General Court of Massachusetts (the ancient name for the legislature) will come to think of the annual antivivisection spasm as a necessary movement—until the fund shall fail. Then no longer will it be annually claimed, even before a dozen citizens, that the hospitals, boards of health, and universities of the old Bay State are criminal because of inhuman cruelties, when in fact these institutions owe their very existence to philanthropy and to real philozoism—to which indeed each continually ministers, as even a busy public appreciates.

THE NEXT NOBEL AWARDS.

Americans are usually said not to miss opportunities nor to fail to try for the prizes that may possibly come their way. There can scarcely fail to be the impression among those who realize the conditions that obtain in the matter of the Nobel prizes; for, as was suggested some time ago by the *Journal of the American Medical Association*, the medical profession of this country seems to be neglecting precious opportunities. These prizes, amounting to $40,000 each, five in all, are awarded each year for the best work in physics, in chemistry, in medicine, in literature, and, curiously enough, since their founder made his fortune in the manufacture of high explosives, for the best work for the promotion of peace. So far not one of these prizes, though the awards have been made some three times altogether, has come to America. In medicine there are surely features of successful investigation that would deserve recognition even in such an international competition.

It must be remembered that it is entirely to American initiative that we owe the present state of our knowledge of appendicitis, one of the most important problems that any generation has had to face in medicine. Even more striking than that, however, is the American solution of the yellow-fever problem. This work was accomplished under the typical conditions for which the Nobel prizes are meant by their founder to be awarded. Only too often, here in America, scientific investigation, though this is less true in medicine than other fields, is carried on entirely with the idea of the pecuniary benefit that may be reaped from it. There was none at all of this in the yellow-fever work, and it was successfully carried through amid the most unselfish exposure of themselves to sickness and death on the part of the investigators. Probably no medical discoveries made in our generation will save more lives and suffering than the results arrived at by the American medical men who solved the problem of Cuba's more than a century old scourge. Already we can point to years of freedom from the disease and a complete sense of security that replaces the unavailing terror of the past.

For the award of the Nobel prizes the names of those deemed worthy of the consideration of the committee must be presented by some scientific association or University. It has been suggested that the American Medical Association might take up this work, but in the present stress of business, due to modification of status and reorganization, such a work is likely to be delayed or neglected. It would seem more especially the duty of a select body, like the American Physicians, or of the American Association for the Advancement of Science, to take up the work of preparing the report to be made to the Nobel Prize Committee. This matter should not be longer neglected, for it seems too bad that America should not claim and obtain her place among the nations of the earth as a great scientific benefactor. The presentation of the report will be an easy matter now, and the rewards will come to those who so bravely did the work, though one of them is already beyond earthly reward, and time may further render the award abortive. This matter deserves to be taken up now.

NITROGENOUS METABOLISM.

In a recent editorial we have called attention to the influence which modern research has had in modifying the older concepts of the process of albuminous digestion, and have pointed out that there is good evidence to show that albuminous synthesis may take place beyond the intestinal barrier, and possibly in the tissues of the body at large, from substances which are much less complex in composition than the albumoses. Granted that this may be the case, it would almost follow as a matter of necessity that our concept of the process of nitrogenous metabolism also would have to be modified accordingly.

Two notable hypotheses regarding this subject have been brought forth since the time of Liebig, of which one was formulated by Voit, and the other by Pflüger. Both views are based essentially upon the assumption of an absorption of albumins from the gastro-intestinal tract, and the existence of such "circulating" albumin, in

contradistinction to that which is built up in the form of cellular protoplasm, Voit's "organized" albumin. According to Voit, then, the circulating albumin, when present in excess of a certain more or less fixed normal, is catabolized by the cellular elements of the body, but without first becoming an integral part of the latter. With Pflüger, on the other hand, the circulating albumin is largely catabolized after being transformed into bioplasm, *i.e.*, after having become an integral component of the living tissue.

Both doctrines have proven very useful as working hypotheses, but it can scarcely be said that either satisfactorily explains all the observed facts. Objections have been repeatedly raised against both, but until recently no substitute had been offered that could seriously be considered a rival. It seems to us, however, that Folin's recently promulgated theory of protein metabolism, and his researches which form the experimental basis of his theoretical deductions mark a distinct epoch in the history of the subject. Folin shows quite conclusively that there must be two forms of albuminous metabolism; one, which tends to be constant; and a second form, which is variable. The first represents the tissue or cellular metabolism proper — the *endogenous* form, while the second or *exogenous* type is intermediate.

At first sight these two forms seem to represent the older hypotheses of Pflüger and Voit, but as a matter of fact there is a wide difference. Voit and Pflüger thus both assume that albuminous catabolism takes place in the same tissues and by means of chemical processes quite similar to those which affect the decomposition of fats and carbohydrates. In other words, albuminous catabolism is regarded essentially as an oxidation, and the greatest amount of albuminous catabolism is supposed to take place, where the greatest amount of oxidation occurs, viz., in the muscles. Folin points out, however, that the albuminous nitrogen exists in the form of amido or imido groups, which can be very readily removed by hydrolysis, more readily in fact than by oxidation. From this standpoint, therefore, there is no necessity for assuming that the nitrogen catabolism occurs by the same method or in the same tissues as the carbohydrate and fat catabolism. There is strong additional evidence further to show that in all probability the catabolism of the exogenous nitrogen does not occur in the muscles at all, or if so, only to a very slight extent. Urea is only found in the muscles in traces, and other possible precursors of the substance, barring kreatin, are not present in quantities which could be considered as at all adequate to account for the amounts found in the urine. Kreatin, however, is not converted into urea in the liver, where according to generally accepted views the formation of urea largely takes place.

We are thus forced to look elsewhere for the antecedents of most of the urea occurring in the urine. It is known that during albuminous digestion ammonia is liberated through the action of the proteolytic ferments, and Nencki has shown that this portion is not utilized in the reconstruction of the albuminous molecule, since the blood coming from the intestines at the height of digestion contains two or three times as much ammonia as the blood beyond the liver. Folin draws the inference that the greater amount of albumin by far, after having been hydrolyzed to comparatively simple units, looses its nitrogen— largely in the liver—and that the non-nitrogenous residue is then transported in part to the different tissues and at once supplies material for oxidation, wherever needed, while another portion is converted into fats, or at least into carbohydrates, and then becomes subject to the laws governing the catabolism of these two groups of food products. That oxidation processes are probably at work in the transformation of the non-nitrogenous residue into carbohydrates cannot be doubted, but the removal of the nitrogen from the amido acids resulting on proteolytic digestion certainly demands no oxidation.

This in brief is an outline of Folin's recently proposed theory of protein metabolism, so far as the exogenous nitrogenous catabolism goes. Regarding the corresponding endogenous processes, in the muscle tissue at least, his researches seem to show conclusively that the catabolic processes here end with the formation of kreatin and its elimination in the urine as kreatinin. Kreatin is thus at once brought into a prominent position among the products of albuminous catabolism, while heretofore very little was known of its significance.

Folin's theory, in our judgment, is more in accord with known facts in animal metabolism than the older hypotheses of Pflüger and Voit, and bids fair to lead to far-reaching theoretical as well as practical conclusions. It readily explains the persistent tendency on the part of the organism to maintain nitrogenous equilibrium,

even when this involves the formation of excessive quantities of urea. All living protoplasm, according to Folin, is suspended in a fluid rich in albumins, and on account of the habitual use of more nitrogenous food than the tissues can use as albumins the organism is ordinarily in possession of approximately the maximum amount of reserve albumin in solution that it can advantageously retain. When the supply of food albumin is stopped, excess of reserve albumin inside the organism is still sufficient to cause a rather large destruction of albumin during the first day or two of albuminous starvation. After that the albuminous catabolism is very small, providing that a sufficient amount of non-nitrogenous food is available. But even then and for many days to follow the cellular protoplasm has still an abundant supply of albumins in solution, and the normal activity of such tissues as the muscles is not at all impaired or diminished. When 30 to 40 grms. of nitrogen have been lost by a healthy adult during a week or more of abstinence from nitrogenous food the living muscle tissues are still well supplied with all the albumins that they can use. This is indicated not only by the unchanged kreatinin elimination, but also by the fact that there is no special feeling of fatigue or inability to do our customary work. Because the organism at the end of such an experiment still has an abundance of available albumins in the nutritive fluids, it is at once seemingly wasteful with nitrogen when nitrogenous food is again ingested. This is why it only gradually, and only under the prolonged pressure of an excessive supply of food albumin, again acquires its original maximum store of this material.

This interpretation of nitrogenous equilibrium constitutes a strong reason why the so-called standard diets are unnecessarily rich in albumins, and opens up new avenues of research on the subject of nitrogenous food consumption both in health and disease.

ECHOES AND NEWS.

NEW YORK.

The Theory of Evolution.—The New York Pharmacal Association has had prepared an attractive panel on this subject, which may be had on application.

Eastern Medical Society.—The Eastern Medical Society held a concert and ball last Tuesday, March 28, 1905, at Terrace Garden. It was a marked success.

Percentages of Hospital Appointments.—In relation to a recent editorial in the Medical News, which stated that only 50 per cent. of medical graduates secure hospitals, it is interesting to note the percentages from the College of Physicians and Surgeons. In 1901 that institution placed 70 per cent. of its graduating class; in 1902 69 per cent.; in 1903, 64 per cent.; and in 1904 71 per cent. The number in each class who do not try the hospital examinations is about 15 per cent., leaving only 15 per cent. who are unsuccessful.

Society of the Medical Inspectors of the City of New York.—Stated meeting of the above society will be held on Tuesday, April 4, 1905 at 8.30 P.M. sharp, at the Chemists' Club, 108 West Fifty-fifth street, Manhattan. Order of business is as follows: I. Executive session; II. Addresses by the Honorary Members of the Society: Thomas Darlington, M.D., Commissioner of Health; Hermann M. Biggs, M.D., Medical Officer; Walter Bensel, M.D., Assistant Sanitary Superintendent; John J. Cronin, M.D., Assistant Chief Inspector. III. Collation.

Recent Hospital Appointments.—The following men in the class of 1905 at the College of Physicians and Surgeons have been appointed to hospital interneships: *Rochester General*, C. D. Driscoll; *Mt. Sinai*, first, H. M. Hays, J. C. A. Gerster, H. Neuhof, A. R. Chamberlain, L. C. Kämpfer, W. J. Heimann, R. W. Pettit, J. Wansansky. Appointed as externes: R. M. Ottenberg, I. Rubin, A. E. Jaffin. *Bellevue*, first, R. R. Ryan, J. C. Mabey, G. B. Emory. The remaining three places were filled by Cornell men. *St. Catharine's*, S. E. Ryan; *Brooklyn City*, first, J. A. Bennett, W. S. Smith, M. D. Prentiss, J. J. Valentine.

Ground Broken for Manhattan Eye and Ear Institution.—Ground for the new Manhattan Eye, Ear and Throat Hospital was broken last week with appropriate exercises. The new building will be on the south side of East Sixty-fourth Street, between Second and Third avenues. The hospital is now at Park Avenue and Forty-first Street. Mrs. C. R. Agnew, widow of Dr. Cornelius R. Agnew, removed the first shovelful of earth. John Sinclair, President of the hospital, presided. Dr. Andrew H. Smith reviewed the history of the institution, and the Rev. Dr. Stephenson, of the Fifth Avenue Presbyterian Church, offered prayer.

Mount Sinai Buys Land.—The Mount Sinai Hospital has bought a plot of nearly eight lots on the south side of One Hundredth Street, directly opposite the hospital buildings which occupy the block bounded by Fifth and Madison avenues and One Hundred and First streets. Isaac Wallach, President of the Mount Sinai Hospital, said that the property had not been acquired with any view of adding immediately to the hospital's buildings, but that the Trustees had thought it advisable to secure the lots and hold them in reserve against the future needs of the institution. The lots had not been bought, Mr. Wallach said, as the result of any particular gift to the hospital, but added that a number of donations since the last annual report was published had made possible the purchase out of the general fund of the institution.

Charities Directory.—The growth of a new line of charitable activity is shown in the addition of a chapter to the 1905 edition of the *Charities Directory* published by the Charity Organization Society. This new chapter gives information of organizations which send nurses to the homes of needy persons,

as distinct from the nursing of the poor in hospitals, convalescent homes, fresh-air cottages and other institutions. There are twenty-five titles in the chapter, showing a wide variety of societies which send visiting nurses into the tenements. A large number of them are religious in character, but some of the large general societies have added visiting nurses to their staff of employees, and the Department of Health is sending nurses to the homes of consumptives to care for them and teach them means for preventing the spread of the disease to their families and neighbors. The Charity Organization Society movement shows a steady growth. Since the 1904 Directory was published about twenty new societies have been added to the roster of such organizations in the United States, making 190 in all, and the relief societies listed in Europe and Australia now total 210. Canada has seven. The Directory contains 2,000 names of societies, institutions and other charitable organizations in Manhattan Borough, about half as many in Brooklyn, and nearly one hundred in Queens. The entries include a brief description of the work of the organization named, how and where and from whom to secure its services, and the names of officers and executive employees. The book contains 675 pages. Published by the Charity Organization Society, 105 East Twenty-second Street, New York, in cloth, $1, postpaid.

Hospitals in Straits.—That the private hospitals of New York are confronted by very serious financial difficulties, which must be remedied, was the consensus of opinion at a conference of hospital representatives held last week in the United Charities building. The conference, which was called by the Association for Improving the Condition of the Poor, was attended by representatives of every large hospital in the city and many of the smaller institutions. All admitted the gravity of the situation as shown by constantly increasing deficits in some of the hospital reports. The hospital situation which led to the calling of last week's conference was first brought to notice a year ago by Frank Tucker, in an article in *Charities*. Since then, it was said, the problem has grown worse instead of better. R. Fulton Cuting, chairman, said, in opening the meeting, that it had become so serious that the interests of the poor were gravely menaced. "One after another the hospitals are reporting enormous indebtedness," said Mr. Cutting. "Why is it? This city is the most generous in the world and its hospitals are the equal of any. What is the reason that the hospitals, which should appeal to the people more than all other charities, are supported insufficiently?" Mr. Cutting said he believed it was because the matter had not been brought properly before the public. He suggested a uniform system of accounting, so that the hospitals could compare notes of expenses and the formation of a committee to gather information and bring the public to a sense of the situation.

Mr. Tucker, who has been investigating the condition of the hospitals, said that of ten suggestions made by representatives of the hospitals whose views had been asked, that of educating the public to give more was the only one really fundamental. He advocated the creation of an independent body of men or women, chosen for their knowledge of social conditions, who should gather the facts about existing conditions, secure the adoption of a uniform system of hospital reports and educate the public on its responsibility for hospital maintenance according to the best standards of medical and surgical science. He suggested that the cost per capita, which each hospital now has a different way of computing, should be figured out by an independent body and given to the public. The public, he said, had an idea that $5,000 was enough to endow a bed, whereas $20,000 was really needed to-day. Oakleigh Thorne, Treasurer of the Presbyterian Hospital, suggested monthly reports from each hospital. Isaac Wallach, of Mount Sinai Hospital, suggested that each hospital have a roll of members, such as Mount Sinai has, each of whom is pledged to give annually from $10 up, and who should have the right to vote for officers and thus have an interest in the hospital. This plan, he said, yielded an annual income of $120,000 to Mount Sinai. Another suggestion made by Mr. Wallach, which seemed to meet with great approval, was that the city should subsidize the hospitals in proportion to the amount each hospital contributed to the support of the sick. "I believe," said he, "that the city is not helping the hospitals as it should by the per capita per diem system as at present."

Dr. John W. Brannan, president of the trustees of Bellevue and allied hospitals, said less money would be needed if the waste in hospitals was stopped. This was the fault of the American system. In the German hospitals, where physicians and nurses were paid, attention was given to details of administration and economy by every one in a hospital. "In our hospitals," said Dr. Brannan, "our house staffs no sooner become experienced than they leave. The nurses are not paid anything, either, and are shifted about. This is all right from the standpoint of the nurses, but not for the public. The hospital is the only American institution which has not come under the modern methods of bookkeeping for finding out where every cent goes."

Dr. Brannan pointed out that the plentiful supplies of bandages and dressings encouraged in hospitals waste unknown in private practice. "Less waste and you'll get more money from the people," he observed in closing. Other representatives were in favor of the hospitals combining to make a demand on the city for a greater allowance for patients, the amount now paid, 60 cents for a medical patient and 80 cents for a surgical case per day, being, it was declared, ridiculously low as compared with the per capita case of the different hospitals. It was resolved that Mr. Cutting should name a committee of twelve to study existing hospital conditions, consider the suggestions made, and report a practical scheme of improvement at another meeting.

A Measure to be Repressed.—The medical profession must act as the osteopathic bill has been reported favorably by the Senate Committee on Judicary—consisting of Edgar T. Brackett, chairman, of Saratoga Springs; George A. Davis, of Buffalo; Nathaniel A. Elsberg, of New York; William W. Armstrong, of Rochester; Jotham P. Allds, of Norwich; Spencer K. Warnick, of Amsterdam; Merton E. Lewis, of Rochester; George H. Cobb, of Watertown; Alfred R. Page, of New York; John Raines, of Canandaigua; Patrick H. McCarren, of Brooklyn; Jacob Marks, of New York, and Thomas T. Grady, of New York.

Dr. E. Eliot Harris, chairman of the Committee on Legislation, calls the attention of the medical profession of this State to a bill introduced in the Legislature by Senator Davis, of Buffalo, entitled an "Act Regulating the Practice of Osteopathy in the State of New York," and asks that the members of the Senate and Assembly

be petitioned in the interest of individual and public health to defeat the osteopathic bill for the following reasons:

To summarize the objections to the osteopathic bill: *First.* Osteopathy, so-called, is an agent or method used in the treatment of disease, and is included in the general practice of medicine.

Second. Osteopathy should not be made a special branch of medicine by an act of the legislature, but should come under the present State laws, which govern all the special branches as well as the general practice of medicine. Any licensed physician has now the right to practice osteopathy as a specialty.

Third. The legislature should protect the public by denying the endorsement of the State to any person, as being capable of treating the diseases of the human body, unless such person can make a diagnosis of the condition of the human body, to do which requires a full knowledge of the science of medicine as taught in the medical colleges of this State, including the use of drugs and other valuable therapeutic agents.

Fourth. If the so-called osteopathic bill becomes a law, all candidates who fail to pass the Regents' examinations to obtain a license to practise medicine in this State may, in this State, treat all diseases of the human body by holding a diploma from any regular osteopathic college in the United States, a privilege which would lower the standing of this State in the educational world.

And finally, it would be more reasonable for the legislature to separate the special branches of criminal, corporation, and real estate law from the general practice of law and establish for each of them a special examining board, so as to make it easier for the candidates for admission to the Bar who desire to practice as specialists, than it would be for the legislature to select one special therapeutic agent used in the treatment of disease and separate it from the general practice of medicine as a panacea for all diseases at the request of those enthusiasts who now ask for a special osteopathic examining board.

PHILADELPHIA.

Donation Day.—On last Saturday the Sisters of St. Francis received donations at the St. Mary's Hospital.

Bill Passed.—After a somewhat concise speech, in which Mr. Plummer told the legislature of the advantage of consumptive camps, this body passed the bill appropriating $400,000 to establish and to maintain two such camps.

Charity Ball Profits Divided.—According to the secretary of the German-American Charity Ball Committee, the profits of the ball, held February 6, were $2,310.54, which sum will be divided equally between the Hahnemann and the Children's Homeopathic hospitals.

Neurological Society Entertained.—Dr. Charles K. Mills entertained 75 members and friends of the Charles K. Mills Neurological Society of the University of Pennsylvania March 24. Among the guests the following physicians were noted: Drs. Hearn, Keen, Dercum, Frazier, Clark, Spiller, Potts, Turnbull, Marshall, Hirst, Pickett, Lloyd and Deaver.

Hospital Quarantined.—For three hours the Medico-Chirurgical Hospital was placed under quarantine owing to the fact that a case of smallpox got into the receiving ward. The case was sent to the Municipal Hospital and the ward was fumigated. Several of the nurses who attended the patient were isolated. The source of the infection is not known, but it is the purpose of the hospital authorities to determine if possible how it arose.

Doctor's Reports on Public School Visits.—The weekly reports of the physicians of the Bureau of Health show that last week 319 schools were visited and 4,601 pupils examined. Thirty-three required vaccination, 207 suffered from defective vision, 11 from defective hearing, 7 from defective speech and 70 from defective teeth. In the industrial schools 927 children need to be vaccinated.

The Spread of Meningitis to be Prevented.—Orders have been issued to Vare Brothers directing them to clean the streets at once. Dr. Martin claims that the streets are filthier now than they have been for years, and particularly in that portion where the greater number of cases have developed, viz., the section bounded be Broad Street on the west, Delaware River on the east, Spruce street on the north and Washington Avenue on the south.

College of Physicians gets Bureau of Health's Library.—These books were taken to that institution, where they will be known as the "Abbott Collection." The collection contains 250 volumes which were gathered by Dr. W. H. Ford, who had been president of the Board of Health for thirty years. It contains the report on the cholera epidemic in 1873 and the report of the Bureau of Agriculture on the swine plague of 1884. Dr. Martin will issue a permit to any physician who wishes to consult the collection.

Hahnemann Hospital's New Clinic.—On March 20 Mrs. George D. Widener presented to the Hahnemann Hospital a new clinic amphitheater, which she erected in memory of her father, the late William L. Elkins. As a preface to his first clinic in this new structure, Dr. William B. Van Lennet described the building to the student body and pointed out the various rooms and their purpose. He laid considerable stress upon the fact that they now have two private wards where patients can be taken to recover from the anesthetic.

Pharmacists Meet.—At a meeting held at the College of Pharmacy the following papers were read: "Ethical Pharmaceutical Practice and its Recompense," by Prof. Henry P. Hynson, of the University of Maryland; "Professionalism Versus Commercialism in Pharmacy," by Dr. William C. Alpers; "The Evolution of Nostrum Vending and its Relation to the Practice of Medicine and Pharmacy," by George M. Beringer, Ph.M. Prof. J. P. Remington, who presided, told of an attempt made to pass a bill requiring applicants to graduate from a reputable college of pharmacy as a prerequisite for examination.

Section on Ophthalmology of the College of Physicians.—This Society met March 21. The scientific program was opened by Dr. S. D. Risley, who read a paper on "Unusual Changes in the Refraction of the Eye." Dr. John T. Carpenter read one on "Epiphora Unassociated with Laryngeal Obstruction." The next paper presented was that of Dr. de Schweinitz upon "Metastatic Ophthalmitis following Labor, with Histological Examination of the Specimens." Dr. Veasey read the last paper; it was upon "Recovery, with Useful Vision, from a Severe Nitric Acid Burn involving the whole External Portion of the Eyeball."

Surgeons to Check Idiocy.—The legislature has passed a bill the text of which is as follows: "On the first of July after the passage of this bill it shall be compulsory for every institution intrusted exclu-

sively or especially for the care of idiots and imbecile children to appoint at least one skilled neurologist and one skilled surgeon to its staff. In conjunction with the physician it will be the duty of these men to examine the mental and physical condition of the inmates. If, after one year's test at the institution, there is no evidence or prospects of improvement, in the minds of these experts, it shall be lawful to operate upon idiots in order to prevent procreation."

Pathological Society.—The society held its regular meeting March 23, at which Dr. E. A. Shuman exhibited "Malignant Tumors of the Ovaries." Dr. W. M. L. Coplin read a paper on "Acute Pulmonary Edema." He showed a rabbit in which edema was produced by the injection of solution of adrenalin. He also exhibited a specimen of a dissecting aneurism in the aorta of a rabbit which had received adrenalin chloride. Dr. D. J. McCarthy read a paper on on "Abnormal Types of Nerve-cell Degeneration." He also showed two specimens illustrating "Hemorrhagic Conditions of the Cerebrum."

The American Society of Tropical Medicine.—This society held its annual scientific meeting March 24. The Panama Canal Zone was the subject under discussion. Dr. Seneca Egbert read a paper on "The History of the Republic of Panama and the Panama Canal." Dr. Joseph McFarland gave an illustrted lecture on the "Canal Zone." Dr. Roland G. Curtin read a paper on "The Medical Conditions of the Isthmus of Panama." The discussion was to be opened by Dr. Samuel D. Risley and Dr. W. W. Keen, but both were absent. At the business meeting Dr. Roland Curtin was elected president of the society, Dr. Joseph McFarland secretary, Dr. John M. Swan assistant secretary, and Dr. Sinkler treasurer.

Philadelphia County Medical Society.—This society held a meeting March 22 on a Symposium of Pneumonia. Dr. Thomas Darlington, Commissioner of Health of New York, was scheduled to speak first, but being unavoidably delayed his talk was postponed until later in the evening. Dr. W. T. Longcope read a paper on "Some Recent Developments in the Etiology and Pathology of Pneumonia." Dr. J. C. Wilson read of the "Symptomatology and Diagnosis of Atypical Forms of Pneumonia." Dr. H. A. Hare prepared a paper on "The Medical Treatment of Pneumonia." He was unable to attend but sent his paper, which was read by Dr. Landis. In the absence of Dr. R. H. Harte, Dr. John Gibbon outlined the "Surgical Treatment and Complications of Pneumonia." The discussion on these papers was opened by Dr. John H. Musser; he was followed by Dr. John B. Roberts. The following also took part in the discussion: Dr. Tyson, Dr. Deland, Dr. Woodberry and Dr. Anders.

CHICAGO.

Hospital Beneficiaries.—St. Luke's, Mercy, Alexian Brothers' and the Chicago Presbyterian Hospital have each been bequeathed $2,000 by the will of the late John Murphy.

Brokaw Hospital Beneficiary.—By the terms of the will of Abram Brokaw, the eccentric millionaire of Bloomington, Ill., the hospital in that city which bears his name will receive $175,000.

Memorial Tablet to Dr. N. S. Davis Unveiled.—A memorial tablet to the late Dr. N. S. Davis was unveiled March 24, in Davis Hall of the Northwestern University Medical School. Addresses were delivered by Drs. Geo. W. Webster, E. Wyllys Andrews, E. C. Dudley, W. O. Krohn and Dean Holgate, of the University. The tablet was presented by the senior medical class of the school.

Crime.—Figures have been compiled by Dr. F. H. Wines, former secretary of the Illinois Board of Charities, and a statistician of note, which show that the belief that crime is widespread in the United States and is increasing in proportion to the population is not true of Chicago. In 1880, when Chicago had a population of 503,181, there were 24,480 arrests here, or 487 to every ten thousand people. In 1890, when the population was 1,099,850, the number of arrests was 62,230, or 566 to every ten thousand people. In 1900, when the population was 1,698,575, there were 70,439 arrests, or 415 to every ten thousand people. Dr. Wines' analysis of his figures shows that, in proportion to population, the number of petty crimes in Chicago decreased 66 per cent., and the number of serious crimes 50 per cent. between 1890 and 1900.

GENERAL.

Departure of Dr. Cushny.—Dr. Arthur R. Cushny, professor of materia medica and therapeutics in the department of medicine and surgery at the University of Michigan, left New York last week on his way to Europe, to take a similar chair in the University of Medicine in London. Dr. Charles W. Edmunds has been chosen to take charge of his work at the University of Michigan.

Honor System at Michigan.—All examinations in the medical department of the University of Michigan are conducted on the "honor system." Each class in its first year adopts the plan and adheres to it throughout the four years' course. The operation of the plan relieves the examiner from guard duty over his class and puts each student on his honor not to give or receive aid in writing his paper. All accusations of dishonesty are investigated by a student committee which recommends to the Faculty whatever action is in its judgment required by the nature of the offense.

Congress of French-Speaking Alienists.—The fifteenth congress of the alienists and neurologists of France and French-speaking countries will be held this year at Rennes, from August 1 to 7, under the presidency of Dr. A. Giraud, Medical Director of the Lunatic Asylum of Saint-Yon in the Seine-Inferieure Department. The following are the questions proposed for discussion: (1) Hypochondriasis, (2) forms of ascending neuritis, (3) baths and hydrotherapy in the treatment of mental diseases. Communications should be addressed to the General Secretary, Dr. J. Sizaret, Médecin en chef de l'Asyle Public des Aliénés de Rennes.

Dartmouth Medical School.—Definite plans are rapidly progressing whereby a practically new medical school will be created to replace the old school, which dates from 1798, when Dr. Nathan Smith was made professor of medicine at Dartmouth College. The first step toward this end will be the erection this summer of a building of large and handsome proportions facing the south adjoining the present one. The proposed cost of the new building is $30,000, a large proportion of which has already been raised among the alumni. The laboratories will be open to all students, and special efforts will be made to give a thorough, up to-date training in modern medicine. The courses of instruction will be the same as at present, but special attention will be given

to the theory and science back of these courses. The medical school will also offer in connection with the summer school a course of graduate instruction, open to all physicians.

Boston Medical Library Meeting in conjunction with the Suffolk District Branch of the Massachusetts Medical Society.—The last meting was held at the Library March 22. Dr. Geo. G. Sears was in the chair. Dr. H. F. Hewes read a paper on "A Study of the Objective Methods of Diagnosis of the Stomach in a Medico-Surgical Clinic with Report of Cases." Dr. Hewes went over in detail the routine treatment of stomach cases in his clinic during the past six months, especially as regards the early diagnosis of cancer and ulcer of the stomach. In these two conditions the question as to the presence or absence of stasis, dilatation, malformation and malposition of the stomach, blood, lactic acid, hyper- or hypoacidity and bacteria and yeasts was to be determined. The methods used to determine these things were described, especially the guaiac test for blood, somewhat discredited in this country, and the correct test for lactic aid by means of an ether solution of stomach contents and ferric chloride. The value of the study of sediments obtained in gastric contents and what could be learned from the presence or absence of various bacteria and cells was emphasized. In making a diagnosis it was the grouping together of certain findings rather than the presence of any single one of them which was of value. As regards results, out of about 18 cases diagnosed as cancer previous to operation or autopsy, all were found to be correct; 12 cases were diagnosed as gastric ulcer; at operation 10 were found to be ulcer, one a cancer and one perigastric adhesions. The paper was of great interest and emphasized a very important and rather neglected part of a routine physical examination. Dr. J. G. Mumford spoke on "The Recent Surgical Conceptions of Non-Malignant Disease." He showed as well as was possible, by means of a table prepared from stomach operations based on statistics from such men as Mayo, Moynihan, Munro and others, the immediate and end results of operations for the purpose of draining the stomach in non-malignant cases. The time was altogether too short in the great majority of instances to get any real idea of end results. Although a great many operations had been done, men either reported them at once without waiting for results or else did not report them at all, or without sufficient detail to be of value. In his own experience the reader found Finney's operation to be the best. The others were described and discussed.

Dr. Bottomley spoke for Dr. Munro and himself, stating the results in their cases. He rather took the ground that the time was coming when chronic indigestion or dyspepsia would prove to be a surgical condition.

Dr. F. B. Lund described his experience in stomach surgery, and spoke of the great relief given to most hopeless and distressing cases.

Dr. E. P. Joslin emphasized the fact that in gastric ulcer, treated medically, the end results were far better in private practice outside a large hospital than in one. He thought too much was left to house officers in these cases.

Preliminary Program of the Medical Association of Georgia.—The fifty-sixth annual session will be held at Atlanta, Ga., April 19, 20 and 21, 1905. The following papers are announced: "The Doctor and the Public Schools," by Theo. Toepel, M.D., of Atlanta; "Bromide Poisoning," by C. C. Stockard, M.D., of Atlanta; "Occult Hemorrhage, Its Diagnostic Value in Cancer and Ulcer of the Stomach," by L. Amster, M.D., of Atlanta; "The Cause and Treatment of Lacrimal Stenosis in Infants," by Dunbar Roy, M.D., of Atlanta; "X-rays in External Treatment," by M. B. Hutchins, M.D., of Atlanta; "Journals for Revenue Only," by Ralph M. Thomson, M.D., of Savannah; "Corneal Abscission," by J. M. Crawford, M.D., of Atlanta; "La Grippe," by J. W. Palmer, M.D., of Ailey; "Croup and Membranous Croup," by S. Visanska, M.D., of Atlanta; "Some Points out of my own Experience in Refraction and the Fitting of Glasses," by Ross P. Cox, M.D., of Rome; "Is Bilateral Operation for Cataract Ever Justifiable; if not, How Soon After Operation on the First Eye is it Safe to Extract the Second Cataract?" by A. W. Calhoun, M.D., of Atlanta; "The Modern Application of the Galvano-Cautery, with Some of Its Uses and Abuses," by A. G. Hobbs, M.D., of Atlanta; "Recurrent Ocular Paralysis with Pain," by A. W. Sterling, M.D., of Atlanta; "The Physician's Duty to the Pregnant Woman," by Jno. W. Daniel, M.D., of Savannah; "Appendicitis, Medical and Surgical," by R. R. Kime, M.D., of Atlanta; "Medical and Surgical Hodge-Podge," by W. B. Hardman, M.D., of Commerce; "The Mode of Infection in Uncinariasis," by Claude A. Smith, M.D., of Atlanta; "Character in a Physician is Like Beauty in the Statue; it asks for Infinite Pains," by E. Morgan, M.D., of Arlington; "The Prompt Repair of Laceration of Female Generative Organs After Labor," by E. C. Davis, M.D., of Atlanta; "Prevention and Treatment of Puerperal Infection," by L. C. Fischer, M.D., of Atlanta; "Report of Cases of Tuberculosis Treated with Bacillus X (Maher)," by T. E. Oertel, M.D., of Augusta; "Report of Case of Myasthenia Gravis," by J. Cheston King, M.D., of Atlanta; "Pneumonia, its Etiology, Pathology and Treatment," by A. C. Davidson, M.D., of Sharon; "Albuminuria," by E. B. Block, M.D., of Atlanta; "Diagnostic and Therapeutic Importance of the Recent Advances Made in the Examination of the Feces," by H. F. Harris, M.D., of Atlanta; "The Clinical Consideration of Tumors," by W. F. Westmoreland, M.D., of Atlanta.

The Medical Society of London.—The one hundred and thirty-second anniversary dinner of the Medical Society of London was held at the Whitehall Rooms, Hotel Metropole, on March 15, with the President, Mr. J. Langdon, in the chair. To the right of the chairman were seated the President of the Royal College of Physicians, the Principal of the University of London, the President of the Clinical Society, the Dean of the Faculty of Medicine of the University of London, the President of the Harvcian Society, the President of the Gynecological Society, the President of the West London Medico-Chirurgical Society, and to the left of the chairman the President of the Royal College of Surgeons, the Director-General of the Army Medical Service, the President of the Royal Medical and Chirurgical Society, the President of the Neurological Society, the President of the Hunterian Society, the President of the Obstetrical Society, the President of the Laryngological Society, and the President of the Society of Anesthetists. After the usual loyal toasts had been duly honored, Sir William S. Church proposed the toast of "The Medical Society of London." He observed that there was in the air much

talk of a scheme whereby the various medical societies in this metropolis would be more or less confederated together. He trusted that the individual societies would still retain their individuality. In any such movement, the Medical Society was bound to take a leading part. Mr. Langton, in responding to this toast, referred to the Lettsomian Lectures given by Dr. Savage, and to the address on the Growth of Cancer by Dr. Bashford. Sir A. W. Rücker, in replying to the toast of "The Guests." proposed by Dr. F. de Haviland Hall, said that the number of students of medicine in the metropolis, instead of increasing, had been for some years falling off, owing to the fact the new provincial schools provided excellent classes for preliminary medical subjects. London must certainly put itself on an equality with the provinces. London had so many great medical schools and such an extraordinary wealth of teaching material that instruction in preliminary medical subjects in the metropolis must be put on a higher footing. These subjects did not require to be taught in the immediate neighborhood of the sick bed, and it was a matter of the greatest importance that there should be established a central medical institution where physics and chemistry, and probably also anatomy and physiology, could be taught. That would do something to put the teaching of these subjects in the metropolis on an equality with the provincial centers, and with the greatest medical institutions in the capitals of the world. He concluded by reminding his hearers that that could only be done with the help of the medical profession. Mr. Tweedy also responded to this toast, and said he was glad to have the opportunity of acknowledging the benefits he had derived from the excellent library of the Medical Society. Sir Constantine Holman proposed the health of "The President," and that gentleman, in acknowledging the toast, paid a high compliment to the efforts of the two honorary sescretaries of the Medical Society, Mr. Waring and Dr. Risien Russell, to whom he attributed the great success of the evening.

Physician (Female) for Government Hospital for the Insane.—The United States Civil Service Commission announces an examination on April 26 to 27, 1905, to secure eligibles from which to make certification to fill a vacancy in the position of physician (female) in the Government Hospital for the Insane, Washington, D. C., at $1,500 per annum and quarters, and vacancies as they may occur in any branch of the service requiring similar qualifications. Only unmarried women will be admitted to this examination. The examination will consist of the subjects mentioned, valued as indicated: 1. Letter-writing (a letter of not less than 150 words on one or two subjects given), 5; 2. Anatomy and physiology, 5; 3. Chemistry, materia medica, and therapeutics, 10; 4. Bacteriology and hygiene, 10; 5. Surgery and surgical pathology, 15; 6. Obsetrics and gynecology, 15; 7. Mental diseases, 20; 8. Experience (rated on application), 20. Applications will be received from graduates of recognized medical schools. Credit will be given for experience obtained in a professional capacity in institutions for the care of mental diseases, in general hospitals, and in the actual performance of surgical operations and the care of operative cases. Two days will be required for this examination. Age limit twenty-five to forty years on the date of the examination. This examination is open to all citizens of the United States who comply with the requirements. Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the accompanying list for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this anouncement should be used in the application. As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will, therefore, arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

Florida Medical Association.—The thirty-second annual meeting will be held at Jacksonville, Fla., April 19, 20 and 21, 1905. The following papers will be read: "Double Tubal Pregnancy, a Unique Case," with specimens, by Dr. Edward N. Liell, of Jacksonville; "Medical Legislation," by Dr. J. Harris Pierpont, of Pensacola; "Personal Experiences with Asiatic Cholera," by Dr. A. D. Williams, of Jacksonville; "Typhoid Fever in Small Towns and Rural Communities—Treatment," by Dr. Albert H. Freeman, of Starke; "Typhoid Fever," by Dr. H. R. Drew, of Jacksonville; "Feeding in Typhoid Fever," by Dr. W. L. Hughlett, of Cocoa; "Sulpho-Carbolates in the Treatment of Typhoid Fever," by Dr. P. J. Stollenwerck, of Jacksonville; "Southern Fevers," by Dr. Wallace, of Ormond, Fla.; "Intestinal Parasites, Blood Findings, Diagnosis and Treatment," by Dr. Charles E. Terry, of Jacksonville; "Malarial Hemoglobinuria," by Dr. L. A. Greene, of Greeneville, Fla.; "The Etiology of Choroiditis," by Dr. Columbus Drew, of Jacksonville; exhibit of a large pulmonary calculus, a lime concretion, coughed up by a patient, with remarks and history of case, by Dr. W. L. Hughlett, of Cocoa; "The Causation and Result of Enucleation of the Eye;" "Effect of the Galvano-Cautery in a case of Deaf-Mutism," by Dr. F. P. Hoover, of Jacksonville; "Eye Strain, a Frequent Cause of Headaches and Nervous Derangements," by Dr. J. Harrison Hodges, of Gainesville; "The Mosquitoes of Florida," by Dr. Hiram Byrd, of Kissimmee; "Antiseptics and Disinfectants. Facts Substantiating and Disproving Claims Made by Manufacturing Chemists," by Dr. H. S. Holloway, of Jacksonville; "Laudry's Paralysis," (acute ascending paralysis) by Dr. John R. Ham, of Malabar; "The X-ray in Malignant Growths, and in other Pathological Conditions," by Dr. C. M. Greiner, of Jacksonville; "Surgical Obsetrics," unusual high temperatures, with report of cases, by Dr. Frederick Meagley, of Daytona; "Medicine, the Pioneer of Surgery," by Dr. F. D. Miller, of Jacksonville; "Radical Treatment of Hydrocele," with report of cases, by Dr. John McDiarmid, of Deland; "A Case of Filaria Sanguinis Hominis;" "Metastatic Gonorrheal Ophthalmia," by Dr. E. Andrade, of Jacksonville; "Changes Necessary to Bring Surgery Up to Date in Florida," by Dr. C. P. Rogers, of Jacksonville; "Peri-Urethral Abscess," by Dr. Fred Bowen, of Jacksonville; "Fractures of Lower End of Humerus, with Treatment," by Dr. N. A. Upchurch, of Jacksonville; paper by Dr. DeWitt Webb, St. Augustine, subject to be anounced.

An American Medical Poet.—In *Medicine* for March there is an interesting account of an American medical poet whose name, writes the *British*

Medical Journal, we imagine, will be as new to most of our readers as we confess it was to us. James Gates Percival was born in 1795, and after taking an arts degree at Yale was for some time engaged in teaching. He then studied medicine, and after graduating at Philadelphia entered the United States army as assistant-surgeon. He was for some time Professor of Chemistry at the famous military academy at West Point. Apparently he left the service to devote himself to scientific research, for he made a geological survey of Connecticut, in the course of which he walked over every hill, plain and morass in the State. In this work he was engaged for five years at an annual salary never exceeding £60. In addition to his scientific knowledge, he was a linguist, reading with ease Latin, Greek, French, Spanish, German, Italian, and the Slavonic languages. But he was utterly wanting in the power of self-assertion; hence his great gifts were hidden from the world. His first efforts in verse were damned by the American press as brutally as were those of Keats by the *Quarterly Review*. If he was not, like the author of *Endymion*, killed off by one critic, the reviewers wounded his sensitive spirit so deeply that he tried to kill himself. Yet the workmanship of his verse was so fine that it earned praise from so severe a judge as Edgar Allan Poe. In addition to metrical translations of German and Slavonic lyrics, Percival published several small volumes of original poems between 1821 and 1843, and a complete edition appeared in 1859. Throughout his life he was a prey to the poverty which used to be the proverbial lot of poets. Hunger forced him to play the part of literary "ghost." He is said to have been the sole author, compiler, and editor of the first edition of the Unabridged Dictionary published in the name of Noah Webster, in which he gave not only the definition but the root and the history of some 16,000 words derived from thirty-nine languages, of all of which he had some critical knowledge. Webster's first dictionary was merely a compilation from standard authorities, the only original part consisting in American slang. It is to Percival that Webster owes his fame as a lexicographer. At last, in the decline of his life, fortune seemed disposed to smile on the doctor-poet. In 1854, through the influence of some friends who knew his worth, Percival was appointed Geologist to the State of Wisconsin. His first report was published in 1855, and he was engaged on the second at the time of his death. If it be asked what caused the failure of a man so brilliantly endowed, so versatile in accomplishment, and so strenuous in work, we think the answer may be given in two words—diffidence and instability. Samuel Johnson said: "Slow rises worth by poverty depress." But many have fulfilled their destiny and uttered the message that was in them, in spite of poverty. There is a wise old saw, "Primum vivere deinde philosophari." James Gates Percival, we take it, was one of those who find it more easy to philosophize than to live.

Special Trains to Portland, Ore.—Arrangements have been completed under which the Northern Pacific Railway will run three solid special trains through to the Pacific coast for physicians who will go West early in July to attend the coming sessions of the American Medical Association, the national organization of doctors. The first special will run through from Chicago, leaving June 30 and reaching St. Paul July 1, proceeding West and stopping at Gardiner, Mont., for a five and one-half day tour of the Yellowstone National Park. A second solid special train will leave Chicago July 1, reaching St. Paul July 2, and proceeding West to Gardiner for a similar tour of the Yellowstone. A third special train will leave Chicago July 6, running through to Portland with stops at several important points. The Northern Pacific has been designated the official route for the handling of the physicians, and the national officers will go West on one of the first two specials, in both of which accommodations are very nearly exhausted. Arrangements are now being made by numerous small parties for space in the third special, and it is possible that additional trains will be arranged for, if the demand for reservations continues heavy. Each special will be made up of standard Pullman equipment, with through dining cars and ample baggage accommodations. Every facility which adds to luxurious comfort en route is being arranged for and the train schedules have been worked out with especial reference to the convenience of the doctors. The third special will arrive in Portland the morning before the convention opens. Especial attention is called to the fact that berth reservations should be made immediately through C. A. Matthews, General Agent Passenger Department, N. P. R., Chicago. The best service can be afforded if the physicians will cooperate in this matter, arranging their plans accordingly.

Dr. Matas Honored.—An event of interest and no small note was quietly celebrated at the residence of Dr. Rudolph Matas, in New Orleans, last week, when a body of physicians, professors and students and intimate friends called at the Matas home and presented him with a beautiful silver service, consisting of some 125 pieces, and a handsome solid silver loving cup. These tokens of honor and esteem were presented to Dr. Matas on the twenty-fifth anniversary of his graduation from Tulane Medical School and his entering upon the active practice of medicine. The whole thing was a complete surprise. Dr. Stanford E. Chaille, Dean of the Medical College, made the presentation in one of his best and neatest efforts. Dr. I. L. Leucht, Rabbi of Touro Synagogue, seconded the presentation of Dr. Chaille, and then Dr. Matas responded in words of tenderest appreciation. He was so overcome by this loving remembrance of the day that he spoke with difficulty at the beginning of his remarks. These pleasing ceremonies occupied a half hour or more. Then Mrs. Matas took charge of the welcome guests and a dainty repast was served. "To-day," said one of the Faculty of Tulane, who assisted in the affair, "marked the twenty-fifth anniversary of Dr. Matas' graduation. His service to the medical profession since his leaving Tulane have been of such lasting value to science and the medical world that we, as members of the Faculty, students, professional men, and, above all, as personal friends, took this simple means of showing some mark of our love and appreciation." The large chest of silver rested on a table under the folding doors of the parlor while the presentation was being made. It is one of the most beautiful, and at the same time the most useful, ever presented on any occasion in this city. The loving cup was also of a most beautiful design and creation.

The Medical Department of the United States Army.—The *New York Sun* has the following excellent commentary on the situation:

"The Medical Department of the army is yet without relief. The *Journal of the American Medical Association* says: 'The responsibility for the failure of the bill introduced last session to increase the efficiency of this branch of the public service rests with the Speaker of the House, who at the last moment refused to per-

mit the measure to come to a vote.' The petition of the American Medical Association, one of the most influential bodies in the United States, branch societies of which are organized in every Congress district in the Union, as well as the personal solicitation of the Secretary of War and the still further formal declaration of the President that 'if the Medical Department of the army is left as it is, no amount of wisdom or efficiency in its administration will prevent a complete breakdown in the event of a serious war,' were of no avail against the views of the practical politician. Nothing but the ruling of teh Speaker stood in the way of this vitally important bill. It had passed the Senate, the President was heartily in its favor and a majority of the House were ready to vote for it. Now it will have to bide its time and await the convenience of the Speaker and the party in power. We do not expect a war, but it is the unexpected that happens; and should war come we shall be no more prepared for it than at the time of the rupture with Spain. We are too apt to forget the disasters for which our shortcomings were then responsible and to remember only the triumph in arms in that short conflict. The recent report of the Typhoid Fever Board, appointed to investigate the sanitary conditions of the United States Army in that period, showed that 90 per cent. of the volunteer regiments developed typhoid fever within eight weeks after going into camp. There were 20,730 cases of this single disease, with a death rate of 7.61 per cent., and this mortality ratio takes no account of the loss from all other diseases. Where strict discipline prevails and where efficient medical organization is in authority, there would be no typhoid epidemics; in fact, no epidemics of any kind. The death rate from disease would be reduced to the minimum and the efficiency of the fighting line would be practically intact except for injuries received in battle. Such are the results obtained in the army of Japan, in which the organization of the Medical Department has reached a degree of perfection never before attained by any nation. That Medical Staff is in touch with the commanders of the various armies in camp and in the field, it is thoroughly equipped, and in all things pertaining to sanitation the surgeon's word is supreme. Some idea of the value of the service to humanity which the Army Medical Staff may perform may be gained by reference to the work of the late Walter Reed, Major and Surgeon, U. S. A., who died in 1902. The investigations of this remarkable man, assisted by Surgeon W. C. Gorgas, who is now in charge of the Medical Department of the Canal Zone, not only removed yellow fever from the city of Havana, where it had had an uninterrupted habitat of a century, but wiped it from the list of epidemics which had often carried death to our seacoast cities and paralyzed for months at a time the commerce of the Atlantic coast. These same results will follow in the Canal Zone if Major Gorgas has proper authority and is furnished with the facilities for carrying out the plan with which he became so familiar during his experience in Cuba. It is a disgrace of our nation that year after year the Medical Department of the Army should appeal in vain to Congress for permission to make itself equal to the protection of our soldiers. The Congressmen who fail to provide this relief should be held to strict accountability."

President to Naval M.D.'s.—President Roosevelt last Saturday attended the graduation exercises of the United States Naval Medical School, held at the Naval Museum of Hygiene. Twenty-three assistant surgeons were graduated. The President delivered the diplomas and made an address. He said: "Ladies and gentlemen, and especially the members of the graduating class: I am glad to have the chance of saying a word of greeting to you this morning. You represent two professions—for you are members of the great medical body, and you are also officers of the navy of the United States, and, therefore, you have a double standard of honor up to which to live. I think that all of us laymen, men and women, have a peculiar appreciation of what a doctor means; for I do not suppose there is one of us who does not feel that the family doctor stands in a position of close intimacy, in a position of obligation under which one is happy to rest to an extent that hardly any one else can stand, and those of us who, I think most of us, are fortunate enough to have a family doctor who is a beloved and intimate friend, realize that there can be few closer ties of intimacy and affection in the world. And while, of course, even the greatest and best doctors cannot assume that very intimate relation with more than a certain number of people, it is to be said, I think, that more than any other man, except a few clergymen, the doctor does commonly assume that relation to many people. While, nevertheless, it is impossible that that relation shall obtain between a doctor and more than a certain number of people, still with every patient with whom the doctor is thrown at all intimately he has that relation to a greater or less extent. Just as the great doctor, the man who stands high in his profession in any city, counts as one of the most valuable assets in that city's civic work, so in the navy or the army the effect of having thoroughly well trained men with a high and sensitive standard of professional honor and professional duty is well nigh incalculable upon the service itself. I want you now as you graduate to feel that on your shoulders rests a great weight of responsibility, that your position is one of high honor and that it is impossible to hold a position of high honor and not hold it under penalty of incurring the severest reprobation if you fail to live up to its requirements. I am not competent to speak save in the most general terms of your professional duties. I do want, however, to call your attention to one or two features connected with them. In the first place, in connection with the work you do for the service you have certain peculiar advantages in doing work that will be felt for the whole profession. For instance, it will come to your lot to deal peculiarly with certain types of tropical diseases. You will have to deal with them as no ordinary American doctor, no matter how great his experience, will have to deal with them, and you should fit yourselves by most careful study and preparation, so that you shall not only be able to grapple with cases as they come up, but in grappling with them to make and record observations upon them that will be of permanent value to your fellows in civil life. You can do what no civilian doctor can possibly do. There probably is not a branch of the profession into which, during your career, you will not have to go; no type of disease that you will not have to treat. But there are certain diseases that you will have to treat that the ordinary man who stays at home of course does not, and it is of consequence to the entire medical profession that you should so fit yourself by study, by preparation, that you shall not only be able to deal with those cases, but to deal with them in a way that will be of advantage to your stay-at-home brethren. There is one other point. Every effort should, of course, be made to provide you with ample means to do your work. Every effort ought to be made to persuade the National legislature to take that view

of the situation; to remember that in case of war it is out of the question to improvise a great medical service for the army and navy. The needed increase is more keenly felt in the army than in the navy, because it is always the army that undergoes the greatest expansion. But it is felt in both services. If a war come for which we have no greater preparation than at present we have made, if, as is perfectly certain to be the case, there be fever in the camps; if there be trouble among the volunteer forces, it is foolish to the greatest degree for the public men, and especially for the public press, to complain and shriek over the people who happen to be in power at that time. Let them shriek—or, rather, do not let them shriek at all, for shrieking is a sign of hysteria—but let them solemnly think over and repent of the fact that they have not made their representatives provide adequately in advance for the medical system in its personnel, its material, its organization and physical instruments necessary to make that organization effective, which alone, if prepared in advance, will obviate the trouble which otherwise is certain to come if we have a war. Let them remember not to blame the people in power when the breakdown comes, but blame themselves—the people of the United States—because they have not had the forethought to take the steps in advance which will prevent that breakdown occurring. Means ought to be provided. That is part of our duty. If we fail in it, then it is our responsibility, not yours. But, and this I want to impress with all the strength that in me lies upon every medical man in either the army or the navy, remember always that in any time of crisis the chances are that you will have to work with imperfect implements. And you can form a pretty good test of your worth. If you sit down and say you could have done good work if only you had had the right implements to work with you will show your unfitness for your position. Your business, then, will be to do the very best you can do if you have got nothing in the world but a jackknife to do it with. Keep before your minds all the time that when the crisis occurs it is almost sure to be the case that you will have to do no small part of your work with makeshifts; to do it, as I myself saw at Santiago the army physicians, roughly and hastily and with but one-fourth or one-fifth of the appliances that he would expect normally to have, and then, as I say, make up your mind that while you have done all you can to get the best material together in advance, that you will not put forward the lack of that material as an excuse for not doing all the work you have to do upon the imperfect tools. Make it a matter of pride to get the best possible use out of them. I greet you on your entrance into the service. I welcome you as servants of the nation, and I wish you every success in the great and honorable calling which you have chosen as yours."

OBITUARY.

Dr. F. B. Whiting, Surgeon-General of the Grand Army of the Republic, died March 27.

Dr. John P. Lombard died last week at his home in Boston from heart disease. He was born at Medford, Nova Scotia, February 14, 1861, and was graduated from the New York University Medical School in 1887.

Dr. Richard H. Sullivan died last Monday at his home in Brooklyn. He was fifty-one years old, and had practised his profession in that borough for more than twenty years. He was a member of the Union League Club and the Kings County Medical Society.

Dr. William C. Detweiler, a well known citizen of Easton, Pa., died suddenly on Wednesday night last. He was talking with his wife about the sudden death of the Rev. David Harbisch in the morning, when he became ill of paralysis of the heart, expiring in a few minutes. He was seventy-four years old.

Dr. Frederic Danne, a retired physician, died last Monday at his home in New York. He was sixty-eight years old. He was a member of the New York, New York Yacht, and Union League Clubs, and also a member of the New England Society, New York Zoological Society, and Brown University Alumni Association.

Dr. Frank H. Rice, one of the oldest and best-known physicians in Passaic County, N. J., died at his home in Passaic, March 27. He went to the General Hospital to perform an operation, and while doing his work he fell in a faint on the floor. He was picked up by the physicians in the room and removed in a carriage to his home. He continued to grow weaker and expired that night. Dr. Rice was seventy-five years of age. He was born in Massachusetts, was graduated from Woodstock College, Vermont, in 1854, and came to this city thirty-five years ago.

Dr. Amos Harrison Brundage, who died a week ago Sunday at his home in Brooklyn, in his seventy-seventh year, was one of the founders of the New York State Medical Society. He was born at Benton, Pa., and after being graduated from the Central College at McGrawville, N. Y., he taught school for several years in Pennsylvania, at the same time being postmaster at Fleetville and conducting a drug store. He studied medicine, and in 1855 was graduated from the medical college of the New York University. When the Civil War broke out he joined the 179th Regiment, New York Volunteers, and later was acting surgeon of the Sixth New York Regiment of calvary under Gen. Sheridan, and was present at the surrender of Gen. Lee at Appomattox. At the close of the war he removed to Cohoes, N. Y., and in 1881 he settled in Brooklyn. He was a member of the Brooklyn Medical Society.

CORRESPONDENCE.

A CORRECTION.

To the Editor of the Medical News:

Dear Sir: In your issue of March 11, in your abstract of the proceedings of the Johns Hopkins Medical Society for December 19, 1904, you report a paper of mine on Ovariotomy at Extremes of Life. In your report you say that I found only three cases of carcinoma in children, besides my own case, in the literature. As the statement is incorrect and was not made in my paper, I should like to give the proper version, which is that only three other cases of carcinoma in children under ten years of age were found in the literature *as operated upon*. There are many cases, relatively speaking, recorded as having occurred, found mostly at autopsy.

Yours truly,

Harry T. Wiel.

Baltimore, March 27, 1905.

THE LYING-IN HOSPITAL.

To the Editor of the Medical News:

Dear Sir: Noting your comment on the Lying-in Hospital I am tempted to give you a sample of the style of treatment I once received there:

Some time ago I went to this hospital to see Dr. X., my cousin, a member of the resident staff. I presented my card to the clerk at the door.

He asked, "Have you an appointment with Dr. X.?"

"No," I said, "but I think he will see me."

"Then I won't send your card to him," said the clerk.

"Why?"

"Because I don't want to, and the doctors don't want to be bothered."

"But this doctor is my cousin, and I know he will be glad to see me," I answered.

"I can't help that," said the clerk; "I am not going to send your card up, and you might as well go away."

Then I asked, "Can I see the house physician?"

(This official happened to be passing through the office at the moment), and the clerk snapped out, "Yes, there he goes."

I have been in a good many public institutions in the United States and in Europe, but I never remember being in one anywhere in which a physician was met with as little civility as I happened to meet with in the New York Lying-in Hospital. I suppose I should have reported the matter to the proper authorities at the time, but I hardly liked to do it because I felt sure it would make trouble for the clerk.

I might add more but refrain.

Very cordially,

X. Y. Z.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held January 11, 1905.

First Vice-President, Franklin B. Stahl, M.D., in the Chair.

The Practice of Medicine in India.—Dr. Anna M. Fullerton (by invitation) read this paper. She said that the practice of medicine in India is attended with great difficulties in consequence of social and religious customs. These, with the dense ignorance and grinding poverty of the mass of the people, are responsible for the widespread epidemics which prevail and which have baffled all the efforts of the English Government for their suppression. There is no scientific system of native medicine. Herb doctors, known as "hakims," combine with their medical practice the use of charms and incantations, with offerings to the gods. Omens and astrology are believed in and much practised. Surgery is consigned to the barber. The condition of women is especially deplorable. High caste women can never see a male physician, but must be treated through the medium of ignorant midwives. Child marriage is an unfailing source of evil. Multitudes of girls of ten to twelve or even less, are thus given over to outrage. Girls of even twelve years are known to become mothers in that land, few attain the age of eighteen without bearing children. An increasing population under these physical conditions cannot be a healthy or a vigorous one. On the part of the mother shocking mutilations are often met with, for which repair of any kind is impossible. The hospitals established by the English Government, and especially mission hospitals and dispensaries are creating a sentiment in favor of Western medicine.

The Antitoxin Treatment of Diphtheria with a Plea for Rational Dosage in Treatment and in Immunizing.—Dr. B. Franklin Royer, of the Municipal Hospital, in this paper, by a series of tables from the statistics of the Board of Health in Chicago, New York City, Brooklyn and Philadelphia, proved an actual decrease in the loss of life in each city respectively as 5,400, 8,204, 951, and 1,853, a total for these four cities, without allowing for increased population, of 16,408 lives. By means of a preliminary table from the 12 census a reduction of varying numbers per 100,000 population was shown in 30 large American cities.

By a table including 67,748 patients treated in the Metropolitan Asylums Board Hospital a decrease in death rate of 15.24 per cent. was shown. By a table from the South Department in Boston, reporting 16,544 cases, a decrease of 29.26 per cent. was shown. In the Municipal Hospital, reporting 10,219 cases, a decrease of 10 per cent. was proven. Dr. Royer ended his paper with a plea for a dose of antitoxin in proportion to the amount of exudate and location of exudate. Large doses were recommended in nasal, nasopharyngeal and laryngeal diphtheria. A plea was made for a more general use of antitoxin as an immunizing agent, and its use earlier in the disease without waiting for culture returns. The dose in use at the Municipal Hospital is, for tonsillar exudate (single) 2,500 units; purely tonsillar (double) 5,000 units; tonsillar exudate with pillars and uvula or pharynx involved, 7,500 to 10,000 units; nasal and any other part involved or for laryngeal diphtheria, 7,500 to 10,000 units. Repeat the dose in each type of disease in from twelve to twenty-four hours, depending upon the sign of improvement, and every twenty-four hours thereafter; when a large amount of exudate persists, a dose of 5,000 to 7,500 units is given until a good part of the exudate has disappeared.

Dr. H. M. Fussell said he had always felt, as expressed by Dr. Royer, that the cause of the high mortality of diphtheria in the Municipal Hospital was their receiving very bad cases. He also agreed with the writer that the conservatism of the practising physician was responsible in part. A comparison of the treatment of diphtheria twenty years ago and now showed the value of antitoxin, for it is now possible to cure every case of diphtheria in which antitoxin is given in sufficient doses in the early part of the disease.

Dr. A. A. Eshner referred to the intravenous employment of antitoxin in malignant cases of diphtheria, and to its employment by the month.

Dr. Royer, in closing, said that they had used the intravenous administration of antitoxin at the Municipal Hospital for about sixteen months in cases that seemed hopeless and had been gratified to see a few get well. He thought the method was well worth trying in malignant cases seen late. He had not mentioned the method, because he thought the practising physician would see the cases early and give antitoxin.

An Unusually Severe Case of Acute Chorea Treated Successfully with Apomorphine.—Dr. Montrose Graham Tull reported a case of acute chorea coming on gradually in a girl, fifteen years of age, with menstruation not fully established, presenting symptoms of acute mania, thickened tongue, gutteral and unintelligible articulations, covered with a confluent, morbilliform, rash, and with incessant choreic movements. After all the accepted forms of treatment had been tried for two weeks, with absolutely no effect, the services of Dr. Charles S. Potts were obtained. He endorsed the diagnosis and treatment pronouncing it the severest case that he had ever seen. Everything else having failed, Dr. Tull concluded to try apomorphine in tentative doses. One-fortieth grain was consequently administered hypodermically with remarkable result. The choreic movements ceased in about three minutes and the child slept peacefully and quietly.

One-twentieth grain of apomorphine every three hours by the mouth was continued for three or four days in addition to the arsenic which she had taken from the beginning, with a perfectly uninterrupted recovery. Within two weeks the patient went to the seashore for the summer and soon became perfectly well. The case seemed of value as the diagnosis and earlier treatment were both reviewed and endorsed by a specialist of standing and from the fact that practically all known means had been exhausted before apomorphine was used. The good results following so promptly the administration of apomorphine renders it of especial importance.

Stated Meeting, held January 25, 1905.

The President, James M. Anders, M.D., in the Chair.

Specimens Illustrating the Need of Early Operation in Surgical Diseases of the Abdomen.—Dr. John B. Roberts exhibited these specimens, the first of which was stricture of the sigmoid flexure due to ulceration of the mucous membrane. A diagnosis of obstruction of the gastro-intestinal canal in the neighborhood of the pylorus and duodenum was made. The condition of the patient was so bad that a jejunostomy alone seemed possible. This was done for the purpose of feeding the patient prior to a more extensive examination of the abdomen and operative relief of the condition found. Death occurred after a few days from exhaustion. It was then found that the obstruction was in the sigmoid flexure. Early operative relief would almost certainly have been accomplished by excision of gut or intestinal anastomosis. The second specimen showed a perforated duodenal ulcer close to the pylorus. A time for operation was appointed, but before operation was done perforation occurred. Immediate operation was then advised as a last resort, but the patient and his friends would not consent. Dr. Roberts believed there was little doubt that a gastrojejunostomy done a day or two prior to the time of perforation would have saved this patient's life. The third specimen was a perforated appendix removed from a case which had come under Dr. Roberts' care about forty hours after an attack of abdominal pain. When he saw the man his pulse was 160 and very feeble. His hands were cold, his face was covered with a clammy sweat and the abdomen distended and painful. Believing that operation would almost certainly result in death Dr. Roberts abstained from even opening the abdomen. Autopsy showed the lower abdomen full of pus with a gangrenous opening in the appendix big enough to admit a lead pencil. The fourth specimen was a large gall-stone measuring an inch and a half by three-quarters of an inch from the gall-bladder of a woman who had suffered for a number of years repeated attacks of pain in the region of the gall-bladder. Operation showed the stomach, gall-bladder, liver and omentum to be bound together by old and firm adhesions. The gall-bladder was dragged backward until its fundus pointed toward the spinal column. It was entirely filled by this large stone. The patient had in addition a bent and adherent appendix from former attacks of appendicitis. The gall-bladder was opened, the calculus removed only with great difficulty; and the appendix excised. Drainage through the lumbar region was employed and a large drainage tube introduced through the abdominal incision. The patient did moderately well for about two days and then died from asthenia. The case illustrated the importance of cholecystotomy in the early stage of all cases of gall-stone disease. The fifth specimen was a globular gall-stone about three-quarters of an inch in diameter removed from the junction of the hepatic, cystic and common gall-ducts. The patient had great pain, persistent jaundice, which at the time of operation gave her a dark bronze color. Choledochotomy was required for extraction of the stone and was followed by hepatic and abdominal drainage.

The specimens were shown to call attention to the importance of operating upon gall-bladder disease, inflammations of the appendix, and obscure lesions of the stomach and intestines early. Dr. Roberts believes that the best results will undoubtedly be obtained in such cases by early exploratory incision, followed by operations for relief, even if such surgical methods are employed before definite diagnosis can be made. He stated that the profession and the public should realize that this is the teaching of modern surgery.

Dr. L. J. Hammond attributes the delay in operation not always to the surgeon or physician, but very frequently to the patient who goes from surgeon to surgeon and from hospital to hospital with fatal results.

A New Saw Especially Adapted for Cranial Surgery.—Dr. H. C. Masland exhibited a saw which seems to solve the problem of being able to enter the skull with safety, celerity and the most promising likelihood of prompt recovery with replacement of the bone flap in a vital condition. The instrument consists in a heavy handle to overcome vibration, a circular saw attached to a short shaft connecting with the flexible shaft of an electric motor or dental engine and a guard accurately regulating the depth of cut. Using either a detachable inner guard or a separate curved guard held by the left hand all irregularities in the thickness of the bone are divided with impunity. The saw makes a cut but one millimeter wide, guaranteeing a minimum waste of bone and replacement without sinking. The original opening can be enlarged by making additional bone flaps.

Dr. John B. Roberts said the saw seemed to him to be a very efficient instrument. He agreed with Dr. Masland that it did not need the guard, since in cutting through bone it is easy to tell by the feel when you get through. The rapidity with which the skull had been cut through showed, he thought, how much the instrument would lessen the time of operation and reduce the time the patient would be under ether.

Dr. T. H. Weisenburg did not agree with Dr. Masland that it was not necessary to have the saw set to cut thicker than a quarter of an inch, since he had seen some skulls in which a deeper cut was required. Neither did he agree that it was not necessary to have a circular incision. The circular flap in his opinion is more easily replaced and is better for cosmetic reasons. He further disagreed with Dr. Masland in regard to the question of time and referred to Dr. Frazier's operations in the University Hospital in which he opened the skull in two minutes and seldom exceeded three or four minutes, which he scarcely thought could be improved upon.

Dr. Masland, in closing, referred to the instrument used by Dr. Frazier at the University of Pennsylvania. The width of incision made by that instrument he understood to be an eighth of an inch at least, which he did not think offered as great probability of union through the line of incision as a cut one millimeter in width made by the saw which he exhibited. This guaranteed a minimum waste of bone, and replacement without sinking.

The Limitations and Possibilities of Electricity in the Treatment of Diseases of Women.—Dr. Barton Cooke Hirst presented this paper. He has found

of late years an advantage in the use of galvanism and faradism in a limited number of conditions among the diseases of women. As a hemostatic agent in uncomplicated small fibroid tumors with no other symptoms than metrorrhagia, he regards it as one of the most efficient possessed by the medical profession. He finds it peculiarly useful in the treatment of amenorrhea and sterility the result of imperfect development, or atrophy of the uterus. Two illustrative cases were reported in which normal menstruation was restored and conception occurred by means of this treatment. In one woman there had been amenorrhea for a year. In the other the menstruation had been reduced to a scanty discharge lasting less than a day as a result of lactation atrophy. The third indication was to restore tone to a paretic sphincter ani muscle after its restoration by surgical means, in cases in which repeated attempts had been made to restore the muscle, with failure, and in which there had been no contractile power exercised for a number of years. A fourth indication for the use of electric currents was found in certain types of dysmenorrhea associated with ill-developed uterus. Local treatment, however, he believes is very rarely practicable in such cases. This limited number of conditions Dr. Hirst said comprise all in which t can be hoped to accomplish much by electricity. At the outset of the paper he disclaimed any intention to discuss the newer developments of electric treatment, such as the use of the X-rays, the ultraviolet rays and high frequency currents.

The Toxic Changes in Brain and Spinal Cord due to Carcinoma.—Dr. T. H. Weisenburg said that the influence of carcinoma of parts other than the brain and spinal cord upon the nervous system is becoming better recognized. Metastasis may occur in the brain, where it may be either in the form of a tumor or an infiltration of cancer cells with the pia of the cortex or of the base of the brain. A case is recorded where basal syphilis was diagnosed, but at the autopsy a metastatic cancer was found. This teaches that whenever cerebral symptoms occur in the course of carcinoma, no matter in what form they appear, metastatis should be thought of in the diagnosis. In the spinal cord, metastasis generally involves the spinal vertebræ, causing a pressure myelitis. Cases are recorded where during the course of the disease such symptoms as mental apathy, dementia, hemiplegia and aphasia occur. These are undoubtedly of toxic origin. Instances have been recorded by the writer of bulbar symptoms and dementia. In these cases a careful microscopical examination of the brain and spinal cord demonstrated alterations in the nerve cells of the medulla oblongata and pons. In another case where there were no cerebral symptoms, changes were also found in the nerve cells of the cortex. Such findings have not been previously recorded.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, held January 12, 1905.

The President, Charles L. Dana, M.D., in the Chair.

Portrait of Dr. Detweiler.—The first business of the evening was the presentation by Dr. S. A. Knopf of a portrait of Dr. Detweiler, the distinguished German tuberculosis expert, who died just a year ago. Detweiler had been an army surgeon in his younger days and contracted tuberculosis in the discharge of his duty, for which he was treated successfully by Brehmer at Gerbersdorf. Here he stayed for six years, eventually becoming Brehmer's assistant. Then he founded a sanitorium of his own at Falkenstein. This situation was only 1,200 feet in altitude, and Detweiler successfully impugned the teaching that altitude was necessary in the successful treatment of tuberculosis. His experience at Falkenstein showed that climate is entirely of secondary importance in the treatment of tuberculosis. He was the first who insisted that outdoor air, even in cold weather, the patients resting quietly in chairs, is the most important element in the therapeutics of tuberculosis. This principle has now come to be adopted by all sanatoria. Detweiler was the first to establish sanatoria for poor patients suffering from tuberculosis. His most wonderful quality was his influence over his patients. As he frequently said, the physician of the tuberculosis patient must be more than a friend, he must be a father confessor. Dr. Detweiler came to occupy a very special place in the affections of his patients. His birthdays were celebrated as special feast days, and cured patients, remembering his goodness, helped him to accomplish many things for the tuberculous poor. He was a man who had saved more lives than many distinguished generals have destroyed. He was a greater hero than a talker, and it is but fitting that his good deeds should be remembered at least by his brother practitioners.

Methyl Alcohol and Neuritis.—Dr. Smith Ely Jelliffe said that the recent sensational reports, so many of which were unfortunately true, with regard to blindness and death from the use of methyl alcohol, had called special attention to this substance. There is no doubt that it causes severe optic neuritis even to complete destruction of the physiological function of the nerve in many cases. It seems to have a selective action for the optic nerve, however, since other forms of neuritis are not reported as the consequences of its use. In this it differs very decidedly from ethyl alcohol, which has a tendency to produce multiple neuritis as first pointed out by the American observer, Dr. Jackson, of Boston, in 1822. The question of multiple or peripheral neuritis consequent upon the use of methyl alcohol is of special interest at the present moment, hence the advisability of reporting all personal observations that may round out our knowledge of the effects.

Illustrative Cases.—Altogether three cases have been under observation in which peripheral neuritis seemed to be due to the consumption of methyl alcohol. The first case was that of a man thirty-four years of age, who came under the heading of a constant drinker. He did not go on "sprees," but every night he took a considerable quantity of whisky between dinner and bedtime. He took what he considered a very special brand, for which he used to pay a neighboring druggist twenty-five cents a quart. The druggist assured him that the reason why it could be sold so cheaply was that it was tax free. His customer thought it was moonshine whisky and was very proud of his opportunity to get it. It proved, however, to be nothing more than Columbian Spirits, the well-known form of deodorized methyl alcohol combined with flavoring extracts and ethers so as to give it a pleasant taste. The symptoms complained of in this case were those of ordinary typical alcoholic neuritis. There was the characteristic drop-wrist with partial ptosis in the upper lids and a loss in vision which, after careful investigation, proved to be due to optic neuritis.

Etiology of the Condition.—There seems to be no doubt of the etiology of the symptoms that developed in this case. The man was not a beer drinker, so that arsenic would practically be excluded. He had nothing at all to do with lead or with any form of metallic poisoning. He had not recently had any of the in-

fectious diseases, nor was he a sufferer from any of the toxic dyscrasiæ that sometimes cause such neuritic symptoms. The history seemed very clear. He very seldom drank outside the house, and whenever he drank at home, it was always of this mixture of Columbian Spirits, and though never to excess, he took it regularly every day. The most interesting feature of the case is the fact that the neuritis which developed did not differ from that due to the taking of ordinary whisky, and this may serve to throw some light on other obscure cases.

Painters and Shellac.—The two other cases occurred in painters who were working in an atmosphere of methyl alcohol, but with regard to one of whom at least there was a suspicion of the consumption of methyl alcohol by the mouth also. These men were varnishers who were employed in finishing desks. They worked in close rooms and were exposed constantly to the fumes of the methyl alcohol for many hours each day. Neither of them suffered from very severe symptoms, and probably their symptoms would have been neglected for some time only for the fact that they developed simultaneously, and this led them to suspect their origin sooner than would otherwise have been the case, and brought them to a physician. Both of them suffered from hyperesthesia of the hands, though there was some numbing also and a parathesia, prickling sensations. Pain was caused by pressure over the nerve trunks, though there was no pain in the joints. They did not mind their sensations until they began to lose power in their hands, when the motor weakness scared them into consultation with a physician. It seems that peripheral neuritis from methyl alcohol is caused by the breathing in of the fumes. De Schweinitz has reported some cases of optic neuritis due to this cause.

Comparative Toxicity of Alcohols.—All the alcohols of this series are toxic, but in an ascending scale from methyl alcohol to amyl. Methyl alcohol, or wood alcohol, as it is called, is cumulative in its effect and the others are not. This seems to be due to the fact that one of the most important effects of methyl alcohol is a great retardation of oxidation. Methyl alcohol remains more or less unchanged when in contact with the tissues, and as a consequence continues to exert its influence. There is usually associated with it some formaldehyde and formic acid which adds to its toxicity. In recent years, owing to the making of odorless wood alcohol, so-called Columbian Spirits, there has been much more abuse of it than has come to light. The Board of Pharmacy in New York City have reported its use in tinctures. It is surprising that more peripheral neuritis has not been reported from its use. It seems probable, however, that deaths from its use come so soon that peripheral neuritis has no time to develop. It acts upon the ganglion cells of the retina particularly, but also on the other important cells of the central nervous system.

Experience at Bellevue.—Dr. Alexander Lambert said that in spite of the rumors of the use of methyl alcohol for the adulteration of cheap whisky, the experience of methylic poisoning at Bellevue is not large. In the last ten years some 50,000 to 60,000 alcoholics have been treated in the wards at Bellevue. Of these nearly 15,000 have been in Dr. Lambert's service. Personally he has not seen any one suffering from what he considered wood-alcohol poisoning, and he has seen no blindness. Bellevue is the place to study the effect of bad whisky. Avenue A whisky frequently produces symptoms of acute poisoning with symptoms of rapidly increasing collapse. This often proves fatal. At times a variation of the symptoms consists of furious delirium. Some of these patients when asked how much liquor they had taken, say "a drink or two." They will confess to taking this much before breakfast. Further investigation, however, shows that by a drink over on Avenue A is meant ten cents worth, and ten cents worth is, as a rule, a pint of whisky. A quart of whisky before breakfast will knock out most men. As a consequence of this excess in drinking, the pathological symptoms found post mortem are very intense, affecting particularly the stomach and duodenum.

Seaside Sanatoria for Surgical Tuberculosis.—Dr. Linsly R. Williams read this interesting paper. There are now many sanatoria for children along the seashore in various countries for the treatment of tuberculosis. Contrary to the experience with adults, salt air and sea-bathing seem to be the best possible treatment for scrofulous conditions in children. The application of this principle to surgical tuberculosis, however, is as yet very incomplete. An English surgeon said not long since that the surgical treatment of tuberculosis is scarcely justified in large city hospitals. In orthopedic hospitals, the necessity for fresh air and sunshine is well understood, and children are sent to country homes during the summer and come back wonderfully improved. The French have demonstrated that surgical tuberculosis patients do extremely well in seaside sanatoria.

Experiment in this Country.—Accordingly it was resolved to try the affect of life near the sea on patients suffering from surgical tuberculosis here in New York. In June, 1904, tents were erected on Coney Island and the patients were instructed to live as patients suffering from pulmonary tuberculosis. The cribs were put outside in the summer on a piazza and the fullest admission allowed to the wards. As the fall came on and the days grew quite cool, the children were kept warm by means of hoods and gloves, though there was practically no complaint of the cold. The effect upon the children has been most marked. All of them are in much better condition, and the average gain is nearly ten pounds in weight. The children were instructed, as were also the nurses, with regard to the care of the mouth and the teeth of the patients. In children suffering from tuberculosis in tissues outside the lungs, this seems an especially important matter, since the avenue of entrance for the tubercle bacilli may sometimes be carious teeth, and then poor teeth always disturb the eating and thus hinder the improvement of the children's health. No special medication was given, though in some cases arsenic and iron were considered to be indicated and were used. When this group of children who had been all summer in tents, and during the colder weather in a frame building on Coney Island, is compared with a corresponding group of hospital children, the contrast is very striking. Any one who sees them will not want to take the responsibility for treating surgical cases in the city.

The Fresh-Air Element.—Dr. J. W. Brannan, in discussing Dr. Williams' paper, said that the results have been excellent almost beyond expectation. Evidently the most important factor has been the air. While the French were the first to introduce this method of treatment, they seem to fear the night air. The fact that many of Dr. Trudeau's patients live outside all the time contradicts any idea of special harm in the night air. The most interesting thing at the present time among these children is to find that though playing outside nearly all the day, their hands are as warm as toast. Of course the children must be kept for a considerable period in such favorable condition. In France they do not expect a cure of joint tuberculosis under two years.

The French think the sea air is better than mountain air, and one thing is certain, that the amusements supplied for children on the seashore constitute a running series of temptations for them to be outside most of the time, and this is the important element in their treatment.

Children Comfortable.—Dr. Virgil P. Gibney said that in his visit to the wards, while he himself found it at time so cold as to be almost uncomfortable, the children not only did not complain of it, but they had become used to it and did not mind it. He considers that the sea air is an important consideration in the matter and feels that it would be a mistake not to give children such opportunities as are afforded by this seaside work. The cases sent were not selected and the results are enough to convince any one who might be dubious of the benefits that accrue from this outdoor air treatment, of cases of surgical tuberculosis.

Absence of Symptoms.—Dr. Charlton Lewis said that one of the most striking features of the sanatorium was the absence of all the usual symptoms of discomfort in the children. In order to convince himself, he spent one night down there and found there were no night cries and no startings in the sleep, though such symptoms are not unusual in children suffering from tuberculous joints, even after considerable improvement has come. The temperature at night in the room was 32° to 44° F., but the children did not complain, and their heads and ears were kept warm by means of hoods. The experience undoubtedly shows the value of fresh air for these patients.

Drugs for Tuberculosis.—Dr. Abraham Jacobi said that while he appreciates thoroughly the helpfulness of fresh-air treatment for tuberculosis, he does not consider, in children particularly, that the affection could ever be left entirely untreated. There are certain drugs that always do good, and to neglect their use at the time when patients are especially susceptible to their good influence is a sad mistake. Wagner pointed out years ago that when phosphorus is fed to dogs suffering from fractures of bones, the good effect of it could plainly be perceived. Dr. Jacobi has found phosphorus of excellent service in subacute or chronic osteitis and in other forms of bone tuberculosis. The phosphates should not be employed for this purpose, because they are inert. Dr. Jacobi has also found that guaiacol, the active principle of creosote is a much better drug to use where there are pulmonary symptoms than creosote itself, and it saves considerable disturbance of the stomach, besides being more directly therapeutic. Phosphorus of course is also of service in rachitis, and especially in bone lesions.

Injections for Syphilis.—Dr. H. G. Klotz read a paper on Intramuscular Injection of Insoluble Preparations of Mercury in Syphilis. He said that this method of treatment is undoubtedly the best, though unfortunately it is somewhat suspected by ordinary medical practitioners. Personally he has given some 2,500 injections and has had no bad results of any kind. He has given in various cases from one to forty-two injections, usually suspended in oil or liquid vaseline, and his custom is to give four to six series of six or eight injections at a week's interval and then consider that his patient has all that is necessary. The most interesting and important feature of this method of treatment is the small amount of mercury needed for a cure. In some cases not more than 10 grains have been employed in all. In most cases, the limit has been about 40 grains. Of late years he has discarded the use of iodide and has treated tertiary manifestations by mercury alone. He has often seen relapses that took place under mixed treatment become better under the injection treatment almost at once and then remain thoroughly under control. His favorite drug has been calomel. This is so prompt in its manifestation that he inclines to agree with the specialist in syphilis, who said that one injection of calomel is sufficient to differentiate malignant disease from syphilis. The promptness of relief is one of the most prominent traits, and even the severest manifestations come under its influence at once.

Some Contraindications.—His custom has been to give the calomel injections deep into the muscles of the buttocks, and he has not often seen nodules as the result of it. Altogether there has been four abscesses in 2,500 cases. Where the occupation of the patient requires the going up and down stairs much, the injection treatment is not suitable, and it will be a matter of regret if employed. In syphilitic patients who are suffering from tuberculosis and who are weakened in constitution the result will not be favorable. Dr. Klotz has never seen albuminuria except in one case where some albumin had been seen previously in the urine. Cases of diabetes were not unfavorably affected by the injection treatment, but, on the contrary, seemed to do better than those treated by mercury by the mouth. Where albuminuria was present, this was not increased by the use of injection, and it is evident that they have no spiritant effect upon the kidney.

Fashions in Treatment.—Dr. Edward L. Keyes said that there are fashions in the treatment of syphilis and that at different times the disease has been treated in different manners. Personally he has found the use of intermuscular injections of the salicylate of mercury of great service. This acts as promptly as fumigation and is much less bothersome of administration. Dr. Keyes has not seen salivation produced by this means. He considers it rather important, however, not to make syphilis too light a thing for the patient, as otherwise there is a tendency to neglect the general health, which may encourage the development of the quaternary symptoms of the disease. As is generally recognized now, these are the most important features of the disease, and must always be considered in every case. If light doses of mercury are continued for at least two years after syphilitic infection, patients are prone to take better care of their general health, and it is a matter of common conviction that it is in patients who neglect this feature of the care of their disease that the organic nervous diseases develop. Symptoms must be treated as they occur, and in case of fulminant symptoms, mercurial injections are important.

Certain Advantages.—Dr. Prince A. Morrow said that it is now more than twenty years since he read a paper before the Academy on the "Treatment of Syphilis by Injection," and the method has come out of the tentative stage. It seems better, however, to draw out the treatment of syphilis than by intensive mercurialization to prevent symptoms and so lead the patient perhaps to neglect the serious condition that still remains. On the other hand, it must be remembered that while in some cases 10 or 12 injections may be sufficient for the treatment of the disease, many more may be required. Dr. Morrow himself has used more than 100 in a single case. In certain obstinate symptoms of syphilis, the injection treatment is more efficacious than any other. Dr. Morrow has seen throat symptoms that would yield to no other form of treatment get better under injections of mercury and stay better.

Reserve Treatment.—Dr. Morrow considers however, that the injection treatment should be a reserve method and not the routine treatment for syphilis. He has seen no abscesses or other disagreeable results from

its use, but considers that the patients will take better care of themselves if treatment is more prolonged. In certain late cases of syphilis there is an idiosyncrasy against potassium iodide, which may be best replaced then by injections of mercurials. On the other hand, when early cases of syphilis have run a very mild course, but the symptoms have recurred severely, perhaps because of lack of care on the part of the patient, then hypodermics are very useful. Syphilitc neuralgias and neuritises get better more rapidly under this treatment than any other. Dr. Morrow considers the salicylates the best form in which to give these injections, though in some cases of late lesions of the nose and throat, calomel has seemed to be more effective.

Dr. Fuller said that the salicylates may be irritant, but they are efficacious. He uses the injection method more and more, and for quick results considers it indispensable. On the other hand, some patients seem to absorb so little mercury from the intestinal tract that this method is necessary.

Rhinoscleroma.—Dr. Toeplitz presented a patient suffering from this rare affection. Altogether some six hundred cases have been reported. The disease is epidemic in Central Europe, but some cases of it are seen here in New York in emigrants. There is a specific bacteria that causes the disease, but it is a very low-grade virulence, and seems only to be able to produce its effect in persons who have been long associated with those suffering from the disease. The disease is of long duration but incurable and the slower the course of the symptoms the more favorable is the prognosis. It has been known to disappear spontaneously after long continued severe fevers.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, held December 14, 1904.

The President, Otto H. Schultze, M.D., in the Chair.

Sarcoma of the Small Intestine with Extensive Metastases in the Heart Muscle.—Dr. E. Libman presented this case. The patient was a male, thirty-five years of age, who entered Mt. Sinai Hospital under the care of Dr. Gerster. Four years before admission the patient had an attack of pain in the hypogastrium. Six months later he had a second similar attack, and eighteen months later a third attack lasting five weeks. Since that time he had been well until four months ago, when the hypogastric pains returned and he developed pains in the left loin. These pains did not radiate downward, though the patient had pain at the end of the penis during urination. The stream was never interrupted. He had to get up once every night to urinate for the past three weeks. Three weeks before admission he vomited all food. He had not been jaundiced. The patient thought he had lost fifteen pounds. When examined on admission the heart dulness was found to extend from the right border of the sternum to the nipple line. The apex beat could not be felt. The sounds were weak and the first sound of the apex was short with very little muscular quality. The liver was enlarged and could be felt 2 cm. below the border of the ribs. The spleen was not palpable. The abdomen wall was rigid. The abdomen was generally tympanitic, and there was marked tenderness just above Poupart's ligament on the left side. Rectal examination showed that about 4 cm. above the prostate there was a large mass, the size of an orange, which extended up beyond the reach of the examining finger. This tumor extended somewhat more to the left than to the right, was moveable and nodular, the mass bulging into the anterior wall of the rectum. The patient was operated upon by Dr. Gerster. The appendix was found to be adherent to a large mass filling the pelvis. The mass was found to be a tumor involving the intestines so that it could not be removed. The further course of the patient was uneventful. The temperature was slightly raised. A fecal fistula developed through the operation scar.

At autopsy the thymus was not evident. There was left hydrothorax with hemorrhagic infarcts in both lungs and areas of new growth. The bronchial nodes were enlarged, pigmented, and infiltrated. The posterior mediastinal nodes were also infiltrated. The heart weighed 510 grams. On the surface of the right ventricle there were several rounded hemispherical prominences, white in color and 2 cm. to 3 cm. in diameter. All the chambers were dilated. The foramen ovale was slightly open. The wall of the right ventricle was thickened. The color was grayish red, particularly near the center. The left ventricle was dilated and the wall was gray in color. The muscle was rather friable. Evidently it was diffusely infiltrated by the new growth. The spleen contained a few anemic infarcts. The gall-bladder was diffusely infiltrated by the new growth. The kidneys contained several anemic infarcts, and areas of new growths which shaded gradually into the kidney tissue proper. The posterior wall of the bladder was infiltrated with the new growth throughout all coats except the mucosa. There were several blackish areas on the posterior walls and the vessels of the trigone were injected. The duodenum was infiltrated over a length of 10 cm., at which point the intestine was dilated. Below this infiltration there were several places at which the intestine was infiltrated for short distances and dilated. At a distance of 120 cm. from the beginning of the jejunum there was a very large dilatation of the intestine, due to infiltration of its wall by the new growth. The tumor was whitish in color and soft; the greatest thickness of the wall of the gut was 1½ cm. The inner surface of the gut was necrotic and ulcerated. This portion of the jejunum was adherent to the bladder, which was infiltrated by contiguity and was also adherent to the sigmoid flexure. The mesenteric nodes were greatly enlarged and infiltrated. There was a partial thrombosis of the superior mesenteric artery.

Microscopical examination showed that the primary tumor of the intestines was lymphosarcoma. The heart, lungs, kidneys, spleen, mesenteric nodes, liver, gall-bladder, and urinary bladder showed metastases. The pancreas and the adrenals showed no metastases. In the wall of the left ventricle and in the septum there was found to be a very extensive infiltration by the new growth, the individual muscle fibers being crowded apart by the cells of the tumor. The fibers were markedly degenerated. The growth was found to begin in the intestinal submucosa and to infiltrate between the muscle bundles. Special points of interest about the case were the dilatation of the intestine, which often occurs in lymphosarcoma of that viscus. There was, also, no ascites and no enlargement of the external lymph nodes. The growth of the tumor in the pelvis and the invasion of the bladder is a characteristic of some of these tumors which deserves more attention from a clinical standpoint than has heretofore been given. The duration of the disease was longer than that of any other case seen by the speaker. This would lead

one to suspect a non-malignant tumor or a tuberculosis of the intestine. Most cases died within nine months, though Rutherford had described one case with a duration of two and one-half years. The involvement of the heart was the most striking feature of this case. Although a note was made on admission to the hospital that the first sound had very little muscular quality, there was no suspicion that the heart itself was involved by the new growth.

Dr. Harlow Brooks said that he had studied six cases of lymphosarcoma involving the stomach and small intestine. Three of these presented metastases in the heart. Some years ago he had looked up the literature and had found that by far the larger percentage of cases where cardiac metastases occurrred were of this kind. There was evidently a tendency on the part of the heart to accept these metastases of lymphosarcoma.

A Case of "Splenomegalie Primitif" with Involvement of the Hemopoietic Organs.—Dr. N. E. Brill spoke on this subject, reviewing the literature and giving the clinical history of his case. Under the caption of primitive or primary splenomegaly, he said, there had been heaped together a large variety of non-malignant enlargements of the spleen. Osler, in an attempt to establish order out of choas, had suggested that those cases of splenic hypertrophy with or without anema and associated with hemorrhagic tendencies should be classed under the name of splenic anemia. Osler considered that the enlargement of the liver in the group of cases to which Banti called attention was but a terminal feature of the disease called splenic anemia. Attention was first called to the group to which Dr. Brill's case belonged by Gaucher, Picou and Raymond, and Collier. More recently two cases have been described by Dr. Bovaird. This class of cases, called by Gaucher epithelioma of the spleen, should be taken from among the group of splenic anemia, because its clinical history and pathology were distinct. The clinical history of Gaucher's type is so distinct that Dr. Brill had been able to state that his cases, published about five years ago, did not belong to the category of splenic anemia, but belonged to this type. The subject of the present demonstration was one of these cases. The patient died in March, 1904, after having been under observation since 1885. The heredity of this young man showed nothing of this type of disease. His history had been traced as far as the great-grandfather on the maternal side and to the grandparents on the paternal side. In none of these ancestors was there any suggestion of this disease. The disease has appeared only in the one generation. The parents of the patient had six children. The oldest died at the age of three of marasmus. The second one is now a woman of forty-five years and is in good health. The third child was one of the patients described in 1901. The fourth was the subject of this demonstration. The fifth had shown in the past two years evidences of the disease. The sixth had died at the age of nine, having shown from his third year a splenic enlargement, from exhaustion after tremendous increase in the size of the spleen and liver. Thus four out of six children have had the disease. This patient had the usual infectious diseases of childhood, measles, scarlet fever, etc. He never had malaria nor tuberculosis nor syphilis. From his third to his ninth year he was not very strong, but afterward grew into a strong chap and had no complaints whatever except occasional bronchitis. At the age of fourteen he began to notice that he perspired rather freely; otherwise he was in perfect health. In 1888, when his sister was married, there having been no occasion for a previous examination, she herself called attention to a mass on the left side of her abdomen. On examination a tremendous enlargement of the spleen was made out. The brother was also examined and there was at that time no enlargement whatever. The next year the spleen could be felt in the patient who was under consideration, the upper portion extending to the seventh rib. His disease thus manifested itself first in 1889, fifteen years before his death. At this time he began to have attacks of epistaxis. These were the only manifestations of hemorrhage for some years. They would occur four to six times a year, were rather profuse, and lasted for a short time. During this period there were no signs of anemia. About four years afterward, the enlargement of the spleen going on very slowly, a beginning thickening of the conjunctiva on the nasal side appeared. This was yellow white in color, and was much firmer and denser than a pinguicula. This symptom was also noticed in the sister, and has since appeared in the other sister.

During this time the blood showed no changes. There was a normal number of red cells, varying from 4,500,000 to 5,600,000. There was no increase in the white cells, and no disturbance of the normal relations of the leucocytes. The spleen continued to increase in size, and nine years afterward the liver began to show enlargement. In 1900, the patient had an attack of acute collitis, preceded by a chill and followed by a temperature of 106.5° F. This was accompanied by numerous watery movements, and after two days by some blood and mucus. From this time the disease progressed very rapidly. During convalescence from this attack, a number of hemorrhagic furuncles appeared on the body, the largest on the extremities. When these discharged their contents they left a permanent pigmented spot. A change in the appearance of the parts of the body which were exposed to the light and air also manifested itself. The skin of the face and hands became yellowish brown in color. There was no icterus at any time. There was no further pigmentation except that left from the furuncles. In 1902, the first sign of pain manifested itself in the region of the spleen. The spleen extended down to the crest of the ilium by this time. Over the bridge of the nose was a persistent erythema, which had made its appearance when the patient was fourteen years old and which lasted until his death. In 1902, for the first time, pain was noticed at the extremities of the tibia and femur. Up to this time there had been no bone pain. In June, 1902, the patient contracted malaria and the plasmodia were found in his blood. After this attack the first tendency to hemorrhage manifested itself. There now appeared permanent petechiæ scattered over the hands, legs, and trunk. During 1903, he had a fairly favorable year, notwithstanding the tremendous increase in the size of the spleen and liver. He complained of no discomfort whatever. After 1895 the first sign of anemia appeared. The hemoglobin was about 80. From 1895 it gradually diminished, losing perhaps one or two points a year until 1900, when after the attack of colitis it suddenly fell to 65. From this time on to the end of his life on March 30, 1904, the hemoglobin diminished until it reached 45. In March he complained of dyspnea. On examination the signs of pericarditis were manifest. The area of cardiac

dulness increased rapidly, establishing a diagnosis of pericardial effusion, which Dr. Brill assumed to be hemorrhagic. Death occurred on March 31, 1904. The autopsy was made by Dr. E. Libman at midnight. Dr. Libman was asked to present the results of the autopsy and Dr. F. S. Mandelbaum the pathological histology of the affected organs.

Dr. E. Libman showed the liver and spleen from the case described by Dr. Brill, and also presented those from the second case which Dr. Brill had mentioned. The spleen in the first case weighed 11 pounds, the liver 10 pounds. In the second case, the spleen weighed 14 pounds, the liver over eight pounds. The organs in both cases presented the same findings, except that atheroma of the splenic vein was absent in the first case. The spleen was very firm. It was chocolate in color, with lighter grayish-red areas. The pulp was swollen. There were numerous infarcts present, some recent, some old. Many of these were in the periphery of the organ. There was no evidence of marked fibrosis to be seen, except where the pulp was less swollen. The measurements were 40 x 20 x 14 cm. The liver measured 35 cm. in width, either lobe, 27 cm.; the organ was 13 cm. thick. There was marked old and recent perihepatitis. On section, the organ was chocolate colored, of firm consistency; it appeared rather granular. Throughout the viscus there were irregular white markings varying in diameter from 0.5 to 2 or 3 cm. They did not seem to bear any definite relation to the lobular markings. The pericardium was distended by two liters of very bloody fluid. The lymph-nodes in the thorax and abdomen were enlarged. The largest were about the size of a large bean. They were fairly soft, and were of a peculiar ochre color, some showing hemorrhagic areas. The bone marrow in the first case was quite firm, dark red in color. In the second case it was partly red and partly ochre-colored.

Dr. F. S. Mandelbaum described briefly the histological picture of the case. The characteristic feature of the disease was a very marked endothelial hyperplasia. This was found in the spleen, liver, lymph-nodes, and bone marrow. The picture found in the case followed very closely, with a few exceptions, the case described by the French writers and Dr. Bovaird, as mentioned previously by Dr. Brill. In the spleen the endothelial hyperplasia occurred in round or oval alveolar spaces. These spaces were the pulp spaces or venous sinuses, and were lined with endothelium which was normal in some areas and slightly swollen in others. The endothelial cells as a rule filled these spaces completely, though some of the alveoli contained a few normal pulp cells, while others were more or less filled with red blood cells. The endothelial cells varied in size and shape, depending on the number in an alveolus. For the most part they were round, oval, or polygonal. The boundaries of the cells were fairly well distinguished, as a rule, but in some places the cells were fused together and the cell outlines then were not clearly seen. The cytoplasm of the cells was slightly granular, or streaked with fine wavy lines, arranged in a more or less concentric fashion, giving a wrinkled appearance to the cells. The nuclei were relatively of small size. The cell body measured anywhere from 17 by 21 micra to 34 by 47 micra, while the nuclei varied from 5 to 8 micra in size. In some of the cells several nuclei were found, as many as six or more being present in some cases. These were not arranged in any particular form but were scattered throughout the cell. No forms presenting the usual appearance of giant cells were found. In other parts of the spleen dense bands of connective tissue were seen, also anemic infarcts containing small areas of necrosis. The Malpighian bodies were for the most part absent, though occasionally one could be seen showing a slight thickening of the walls of the central vessel. A large amount of pigment was scattered throughout the sections. This was seen along the connective tissue bands and sometimes in the alveolar spaces. The sections of the liver presented the ordinary picture of a diffuse cirrhosis. There was a marked increase in the interlobular connective tissue without apparent effect on the liver cells. The bile ducts were not affected. The endothelial cells described in the spleen were also found in the liver. For the most part they were seen in the connective tissue spaces, but were not so clearly defined as in the spleen. They were also found in the lobules proper, either near the periphery or in the capillaries, extending toward the center of the lobule. The cells were somewhat smaller in size than those in the spleen, but otherwise were identical in their general appearance and staining reaction. Pigment was also found distributed throughout the connective tissue of the organ.

The sections from the lymph-nodes were so changed that they appeared simply as one mass of endothelial cells, with a remnant of a follicle remaining here and there. With the low power one could see large masses of pigment in the lymph sinuses and also following the reticulum of the node. The endothelial cells had the same general appearances as in the spleen and liver, but their outlines were more definitely preserved. Some very large forms were seen in these sections. The pigment in the nodes, as well as that found in the spleen and liver, gave the usual reaction for iron.

In the bone marrow these endothelial cells were also found, and Dr. Mandelbaum thought this to be the first case of splenomegaly in which their presence in the marrow had been noted. They were found attached to the walls of the capillaries and to the reticulum of the bone marrow. In several places these cells were seen in the lumen of the capillaries. They had the same features as in the other organs. As far as the deductions to be drawn from these sections were concerned, Dr. Mandelbaum did not feel justified at the present moment in coming to any conclusions as to the consecutive involvement of the various organs, or whether the process occurred simultaneously. A modification of Mallory's connective tissue stain, devised by Dr. Buerger, had been used in staining some of the sections. This brought out the markings in the cytoplasm very distinctly and also differentiated the nuclei better than most of the other stains employed.

Dr. David Bovaird, in the discussion, said that these cases were of very great interest from two standpoints. First, the clinical; he thought they proved that there was a definite group characterized by this primary enlargement of the spleen which should be separated from the other groups of cases. Shortly after the publication of his own paper, Dr. Brill had called his attention to this series of cases in one family. Dr. Brill had said at that time that the cases reproduced the clinical picture of the cases described by Dr. Bovaird. In other words, Dr. Brill had made a clinical diagnosis of a condition exactly that was found in these children, and the autopsy findings proved that this diagnosis was cor-

rect. From the pathological standpoint the condition was of interest in the interpretation put upon the findings. Dr. Bovaird thought that the question really lay between whether this condition should be called a hyperplasia, or whether it should be classed as a tumor and called endothelioma. At a recent meeting of the American Association of Physicians, the opinion had been expressed that these conditions belonged in the class of endothelioma. Whether this condition was a tumor or an hyperplasia was one of those questions which only pathologists could discuss to advantage. It seemed that even among pathologists the conception of what constitutes a tumor was not clear enough to enable one to determine the exact position of changes such as these. The clinical history of these cases seemed to point rather clearly to some influence running in a family rather than to a new growth. It would, of course, take many other observations and much further study to determine this point.

Dr. Libman said that the absence of disease of the splenic vessels in the first case was noteworthy. In the condition described by Banti it was usually present. The microscopic changes in the bone marrow were of great interest. There were present many nucleated erythrocytes, lymphocytes and mononuclear cells, neutrophilic and eosinophilic myelocytes and giant-cells in abundance. The occurrence of such changes in the marrow with the absence of abnormal cells in the blood was a remarkable finding. Dr. Libman thought that the cases showing the same lesions as this one—those of Gaucher, Picou and Raymond, Collier and Bovaird—should be grouped separately from other forms of splenomegaly, and for the time being be called "splenomegaly of the Gaucher type." Dr. Osler had seen the microscopic sections and had noted the resemblance to Gaucher's findings.

Recent Observations on Parasites of the Mosquito.—Dr. W. N. Berkeley reported some recent observations on parasites of the mosquito. The first specimen was a minute nematode worm, called by Mr. Henry L. Viereck, of the Connecticut Agricultural Experiment Station, *Agamomermis*. The speaker was indebted to Mr. Viereck for the beautiful preparations shown, illustrating the egg, larva, pupa, and imago of the mosquito concerned (*Grabhamia sollicitans*, formerly *Culex sollicitans*), and the parasites. Mr. Viereck wrote that he had found *Agamomermis* only in the female mosquito, usually one only, but sometimes as many as five, in one body. In parasitized mosquitoes, eggs have been found only in one or two individuals out of hundreds examined. The same, or certainly a very closely allied parasite, had been reported as found in a dish of water in which pupæ of *Anopheles* had been reared (H. P. Johnson, *Bulletin of New Jersey Agricultural Experiment Station*, November 29, 1902). A very similar worm was described as having been noticed many years ago by Leuckhart (Howard, quoting from Stiles, Mosquitoes, New York, 1901). The worm was easily recognized as a nematode under the lower power of the microscope. The speaker had never had the good luck to find a specimen in his own work. The second specimen was a red mite, smaller than a small pinhead (1.5 mm.), which he had discovered on two occasions, attached once to the thorax, once to the abdomen, of one of the common *Culex* species (not worked out carefully, probably *Culex impiger* or *Culex triseriatus*) in the City of New York. The mite appeared to do little or no damage to its host. A specimen had been kindly identified for him by Mr. Nathan Banks, of the United States Department of Agriculture—through Dr. Howard's good offices—as the larva of a *Hydrachnid* belonging to the genus *Eylais*. Dr. Howard had written as follows: "The adults of these mites are parasitic upon the water-bugs or 'water-striders,' usually of the family *Nepidæ*. Their presence upon the mosquito is probably accidental, they being probably in no sense specific parasites of the *Culicidæ*." Dr. Berkeley feared that both specimens were mainly of academic interest, but thought that, in view of the vast hygienic and economic importance of mosquitos, their parasitology was worthy of systematic study.

Studies on the Etiology of Measles. Dr. Cyrus W. Field said that these studies of measles were begun in connection with some observations of Dr. Duval's during the summer. Dr. Duval devised a method of obtaining blister fluid in scarlet fever cases to see if he could obtain the parasites described by Dr. Mallory. He used the Wright stain, and therefore in a great majority of the slides there was absolutely no sign of chromatin stain. These bodies stain a pale blue, with a little darker blue granules throughout. After seeing these specimens Dr. Field had made some blisters on scarlet fever patients and also on measles and diphtheria patients. In scarlet fever, out of eighteen cases these bodies were found in fourteen. Thirteen cases of measles were studied. In the first six days of the rash the bodies were found in eight cases. After the fifth day to the tenth day they were not found. They were not found in three cases of diphtheria antitoxin rash, in erysipelas, in hereditary syphilis, in an urticaria rash, in normal skin, or in irritated normal skin. The bodies found were very definite and characteristic. The ones considered as being of interest were those which stained blue with a chromatin staining substance in them in the form of granules or solid dots. The specimens were all stained with Hastings' or the Giemsa stain, the latter being much stronger. Some hanging drops and spreads had been made which showed some very suspicious occurrences. For instance, there were a number of leucocytes in the different fields which gave off pseudopodia which would work off very rapidly and in a short time assume a definite round appearance, with two, three, or five granules dancing rapidly and giving a much more striking appearance than many malarial parasites. They were very numerous in freshly drawn serum, and when stained showed that these small granules were chromatin-like in their reactions.

SOCIETY OF THE ALUMNI OF CITY HOSPITAL.

118th Stated Meeting, held January 11, 1905.

Joseph F. Terriberry, M.D., in the Chair.

Sporadic Cretinism—Observations Based on Fourteen Personal Cases.—Dr. E. Mather Sill read this paper. The author related the history and treatment of 12 cases of infantile cretinism. This paper will be found in full in a subsequent issue of the Medical News.

Dr. William P. Northrup opened the discussion of Dr. Sill's paper. He said that very great credit was due to Horsley for the successful experiments on monkeys which led directly to an understanding of the then obscure etiology of myxedema. It rendered intelligent and successful treatment possible. He then

described at great length the history of an attack of pneumonia which occurred in a cretin under his observation. Except for the temperature, which rose but slightly above the normal, this attack ran the usual course, which is expected of the disease in the healthy individual. He said that the color of cretins was usually characteristic and likened it to that of tallow. He compared cretinism with a case of myxedema in an adult and showed that although apparently different, the symptoms exhibited by the two types were in reality identical.

Dr. Charles G. Kerley briefly reported a case of cretinism occurring in a patient three years old. He showed photographs taken at intervals of three or four days, during which time 34 grains of thyroid extract had been taken. The change in the individual was so marked as to render it impossible to recoginze the two photographs as having been made of the same patient. The speaker considered the diagnosis to be as a rule relatively easy. He usually begins treatment by giving one-half grain of thyroid the first day and one grain the second day, the dose being then kept at this point and improvement awaited. The signs of this improvement were in his opinion first that the skin loses its dryness and that occasional perspiration is noticed. Later the mental condition shows improvement. The dulness and apathy are the first to give away. Then the weight gradually diminishes and the hair thins out. A constantly clammy skin is a certain indication for a smaller dose of thyroid. He instanced a case of cretinism occurring in a girl six years of age. She is at present in good health. Her treatment was temporarily stopped at the second year. This was followed immediately by a return of symptoms. The hair of cretins, even under the most judicious treatment, will never become normal.

Dr. William L. Stowell mentioned four cases of cretinism which he at present had under treatment. The first patient is a male, twenty-one years of age. He is three feet tall and weighs 44 pounds. He has gained rapidly under treatment, appears happy and is much pleased with toys. The second case was that of a female, nineteen years old. Her weight had decreased by treatment, but her disposition was still unimproved, for she continued to be extremely quarrelsome. The third case was that of a boy. In many respects this history is remarkable. The girth of the trunk had diminished and the individual had actually gained three inches in height. In this case it was further noteworthy from the fact that a plaster cast applied for the treatment of a fractured leg had caused an erosion ulcer. Under thyroid this ulcer healed very rapidly, thus demonstrating the profound effect of the secretion on metabolism. Dr. Stowell said that as to treatment by transplantation by thyroid glands into the abdominal cavity or other regions of the patient's body, it had been noticed that such transplantation was invariably followed by atrophy of the transplanted gland. Benefit has usually resulted for from five to six months only.

Intravenous injection had been used, but was now virtually given up. The best treatment is probably the continued giving of the gland by mouth.

Dr. Terriberry mentioned a case of cretinism which was particularly interesting because of the hereditary deductions to be drawn from it. The mother had given birth to two cretin children. She was then treated by thyroid and gave birth to a third child, which was entirely normal

BOOK REVIEWS.

A Dictionary of New Medical Terms, including upward of 38,000 words and many useful tables, being a supplement to "an illustrated dictionary of Medicine, Biology and Allied Sciences." By George M. Gould, A.M., M.D., author of "The Student's Medical Dictionary," 30,000 medical words pronounced and defined, "The Meaning and Method of Life," "Borderland Studies," editor of *American Medicine*, etc. Based upon recent scientific literature. P. Blakiston's Son & Co., Philadelphia.

As Dr. Gould himself says, nothing so well illustrates the astonishing vitality and progress of present day medical science as its unparalleled multiplication of words; that in a decade over 30,000 new terms should have been devised is almost incredible. It is doubtful if any other science or object of study has ever shown such a phenomenon. That the work of collecting the new words is well done goes almost without saying. That it is complete, its surprising size under the circumstances is the best evidence. Undoubtedly a great many words have been admitted to it which have as yet scarcely vindicated for themselves a place in the language, but then the book is not meant so much as a language treasury as a help to the busy medical reader.

Under these circumstances, however, we consider it unfortunate that there should be so many compulsory references to Dr. Gould's larger dictionary. There are a large number of words for which no direct definition is given, though phrases in which the words are used and compound terms of which they form a part are freely defined. Not infrequently the consultant of the dictionary will have to turn to the larger dictionary for the essential significance which might, it seems to us, have readily been given in a few words without adding materially to the bulk of the book. This will, we fear, detract from the usefulness for the busy doctor, who must read as he runs, of a very valuable work.

Principles of Physiological Psychology. By Wilhelm Wundt, Professor of Philosophy in the University of Leipzig. Translated from the Fifth German Edition (1902). By Edward Bradford Titchener, Sage Professor of Psychology in the Cornell University. The Macmillian Co., New York.

Twenty-eight years is a long life for a book, yet such is the age of the fifth edition of Professor Wundt's work, a translation of which is before us.

Of the book itself it is unnecessary to speak. Workers in psychology have recognized it as the leader in its subject for a number of years. We congratulate ourselves that we have it in such a commendable form and felicitate Dr. Titchener on the final success of his hopes and ambitions.

We feel that the present work will give a renewed impetus to the awakening sense of the needs of a psychological substratum for correct interpretation of morbid mental phenomena, and that the book will meet the requirements of the alienist more particularly, while also contributing largely to the culture of the progressive general practitioner.

BOOKS RECEIVED.

Essentials of Nervous Diseases and Insanity. By Dr. J. C. Shaw. Edited by Dr. S. E. Jelliffe. Fourth Edition. 12mo, 196 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

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ORIGINAL ARTICLES.

FURTHER NOTES ON THE FUNCTION OF THE PARATHYROID GLANDS.

BY W. G. MACCALLUM, M.D.,

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AND

C. F. DAVIDSON,

STUDENT OF MEDICINE, OF BALTIMORE.

IN a previous paper[1] one of us reviewed some of the recent work on the physiology of the parathyroid glands and recorded a number of experiments carried out with the aim of defining in some way those functions. Since there still remains much obscurity about this subject we venture to make known the result of a few more experiments along similar lines.

In the paper cited, experiments were described which tended to show that the tetany resulting from extirpation of the parathyroids is probably not an affection of the muscles themselves nor of the peripheral nerves, but rather of the higher centers of the nervous system, for section of the spinal cord practically abolishes tetany on the portion of the body thus paralyzed. After the publication of these results the paper of Lanz[2] first came to our notice in which he describes similar experiments and further the elimination by extirpation of the motor areas of the cerebral cortex in which even an increased tetany of the paralyzed side was observed. We have produced this condition once after several attempts, extirpating the motor area on one side only and after the wound had healed, or nearly healed, extirpating the parathyroid glands. The dog succumbed to the typical tetany in which there was no especial inequality of the convulsive movements to be noted on the two sides. We can therefore agree with Lanz, or at least say, that this is an affection of those cells which continue the function of the muscles which are cut off from their original direct cortical connections. Exactly where these cells are it is difficult to say.

In that paper there were also notes of some experiments which showed clearly, as the papers of Albertoni and Tizzoni, Fano and Zanda and others had previously shown, that the tetany could be temporarily relieved by bleeding and injection of salt solution into the veins. This apparently demonstrated the presence of a circulating toxin which was the cause of the nervous disturbance. At that time it was not found possible to confirm this idea by producing tetany by the transfusion of the blood of a dog in tetany into the veins of another dog, either normal or parathyroidectomized. Two cases were described there, in neither of which any symptoms appeared. Several Italian writers have, however, described positive results in such an experiment, and on that account it was again attempted. The experiments hardly lend themselves to tabulation so that they will be recorded briefly, in order as copied from my notes:

Dog 119.—One parathyroid removed from each side; dog remained well. On May 3 at 4.30 P.M., the dog was etherized and the blood of dog 121 transfused directly from the aorta into the jugular vein while dog 121 was in violent tetany. At 5.30 P.M., on recovery from ether, the dog is trembling, but not in tetany; 7 P.M., and no definite twitching; 12 midnight, dog seems normal, no twitching; May 4, dog is quite well.

Dog 127.—Small puppy—May 9, 5 P.M., right thyroid with parathyroids removed; two parathyroids removed from left side. Dog bled 100 c.c. from jugular vein. Canula from aorta of dog 124, then in tetany, introduced into proximal end and blood allowed to run until dog 124 died of anemia. Animals etherized. 8 P.M., dog recovered from ether and no tetany—seems well; 1.30 A.M., dog asleep, no twitching.

Dog 135.—Partial parathyroidectomy; dog bled 80 c.c. and 90 c.c. of serum of blood from dog in tetany run into jugular vein. No evidence of tetany. Dog died of pneumonia.

Dog 145.—Two parathyroids removed from right side, thyroids with parathyroids from left, January 14. (From the further history it seems that some parathyroid tissue must have remained.) On February 1 dog seemed quite well. Etherized, bled 50 c.c. and 200 c.c. of blood from dog 147, then in tetany, allowed to run into the jugular vein from a funnel after straining through four-ply gauze. On recovery from ether the dog had violent spasmodic twitchings, trismus, etc., which were confused by the incoordination and shivering due to ether. We thought at the time that the dog was in tetany, but in the course of an hour this wore off and it could then only be said that the dog was shivering. Next day (February 2) he received, without anesthetic,[1] 80 c.c. of the same blood which had stood overnight. Some twitching appeared but soon passed off. Dog was well next day and remained well until March 10, when, almost two months after the first operation, he had an attack of tetany with respiratory distress, which however soon passed off. Dog

1 W. G. MacCallum, MEDICAL NEWS, Oct. 31, 1903.
2 O. Lanz. Volkmann's klinische Vorträge, 1894.

1 The operation of introducing the blood is very slight and the animals make no objection to it; therefore, on account of the disturbing effects of the anesthetic, which are obvious in the decriptions given by other writers, the subsequent transfusions were done without anesthetic.

was then well until March 26, when he was found in another attack of tetany with violent respiratory distress, rigidity of the legs, etc. Two days later (March 28) dog seemed quite well; was bled from jugular 100 c.c. and received at 1 P.M. 150 c.c. of blood from dog 157, then in violent tetany. At 2 P.M., slight shivering. At 3 P.M., distinct shivering; dog lies quietly, with scattered slight twitchings; nothing more definite. At 6 P.M., dog has very slight twitching, which is declared by the bystanding dog fanciers to be merely shivering. No fibrillary tremor of tongue; dog lies quiet. Next day (March 29) he seemed normal enough; dog died April 6 much emaciated. No lesion found to account for death.

Dog 151.—February 21, four parathyroids removed; there was probably not a complete parathyroidectomy. March 6, dog seems quite well; wound healed. At 5.30 P.M., bled 100 c.c. from the jugular vein and received 300 c.c of blood from dog 153 bled during tetany. The blood was defibrinated and introduced into the proximal part of the jugular vein, a little at a time, during about forty-five minutes. Some slight tremor of limbs and head appeared during operation, readily felt over the legs. 6.30 P.M., after dog was released, nothing definite could be made out; tremor, if present, was remarkably slight and easily confused with shivering. 8.30 P.M., dog observed with care under strong light. There is, while he walks about, no evidence of any disturbance unless it be a general lassitude and tendency to lie down. When allowed to be still the hind legs and pectoral muscle do twitch distinctly, even when he is lying on a warm wooden surface. 11 P.M., same conditions; nothing observed when walking, slightest tremor on remaining quiet. Next day the dog seemed quite normal. March 8, dog has, at 9.30 A.M., slight definite tetany. Next day (March 9) dog was quite normal, and from then to April 17 the condition remained the same. On April 17, at 12.30 P.M., dog was bled 100 c.c. from jugular vein and received 150 c.c. of blood from dog 152 killed in tetany. Dog runs about after operation; slight shivering, no other disturbance; no definite tetany; 1.30 P.M., dog shivering quite violently, but no definite tetany; 3.45 P.M., laid in sun on a warm table for a while. It is so warm there that he can hardly be shivering. Dog lies perfectly quiet, while slight but distinct twitchings can be both seen and felt. The hair over the twitching area makes definite excursions. This is most marked over shoulders and thighs and respiration not affected. At 10.30 P.M., twitching had stopped; April 18, normal.

Dog 186.—December 23, complete parathyroidectomy; December 24, dog in violent tetany at 4 P.M., with rigidity of limbs, dyspnea, tachypnea, etc.; 4.30 P.M., bled about 100 c.c. or a little more from jugular vein. By this time the tetany had become reduced to a play of muscular twitchings over the body, and a distinctly rapid but not violently labored respiration. 100 c.c. salt solution introduced into the jugular vein. Within four or five minutes the respiration became normal and the tetany was reduced to a scarcely perceptible twitching of a few muscle-bundles, the upper eyelids, which had been much retracted, became normal, and dog was allowed to run about. At 5.20 P.M., or about half an hour after the previous bleeding and infusion had been completed, the blood which had been defibrinated was returned to the veins. No increase in the very slight twitchings. 6.30 P.M., dog in same condition. Observed again at 7.30 P.M. and at 12.30 A.M., but no return to the violent tetany could be observed. December 25, dog shows no tetany and seems to be in good condition. December 28, dog still without evident tetany, runs about. Tetany did not reappear, and by January 10 the wound had healed and the dog seemed pretty well. The thyroids were then removed and two bits of parathyroid tissue were discovered embedded in them. This dog had, therefore, developed tetany upon the incomplete removal of the parathyroids.

It is apparent from these cases that no very intense tetany can be produced by the intravenous injection of blood taken from a dog during tetany, even when the subject of the experiment is an animal deprived of most of its parathyroid tissue and subject to occasional attacks of tetany, as in dog 145. In the last experiment (dog 186) the dog was subjected to this test practically during the attack of tetany, but the introduction of the salt solution to produce the non-tetanic condition makes it no longer possible to expect the pure effects of the introduction of such toxic blood in a dog known to be disposed to tetany, for the experiment finally amounts to the simple introduction of 100 c.c. of salt solution into the veins of a dog in tetany which would doubtless stop the tetany. Two attempts were made to cause the disappearance of tetany by the mere removal of blood and its reappearance by the reintroduction of the blood, but unsuccessfully.

Dog 179.—Medium-sized female. Thyroids and parathyroids extirpated January 16; dog found in violent tetany January 19 with marked respiratory disturbances, and from one period of apnea was restored only by vigorous artificial respiration. Bled about 150 c.c. from the carotid, after which the respiration remained irregular, being rapid for perhaps twenty seconds, returning then to the normal rate. The rigidity and twitchings were somewhat improved but the dog was still pretty stiff. In the course of further bleeding, in the attempt to cause the disappearance of the tetany, the tremors did seem to disappear but the dog was moribund and died.

Dog 192.—Young dog. Parathyroids removed February 13; violent tetany February 14; bled 175 c.c. and 150 c.c. salt solution intro-

duced into veins. Rigidity and tremors disappeared within twenty minutes. Half an hour later the defibrinated blood was reintroduced into the veins, causing marked congestion. The dog continued to lie quietly on the floor, apparently quite comfortable. From February 14 to February 21 he seemed fairly well, although rather apathetic—no tetany. On February 21 the dog again developed violent tetany with respiratory distress. Attempted to bleed and reintroduce the blood without salt solution, but the animal succumbed after the removal of about 125 c.c. of blood, while still showing definite tetany.

It is doubtful whether one could place any reliance upon observations made upon an animal bled to such an extent, at any rate, for the characteristic respiratory symptoms are at once modified by the anemia, and the great weakness resulting from the anemia of the muscles has also its effect upon the tetany. The disappearance of tetany on the introduction of a small quantity of salt solution and, especially the length of time during which the dog will remain apparently well after such treatment before the tetany reappears, offers some difficulties for explanation.

Apparently the quantity of toxin in the circulatory blood is, if one may judge from these experiments, extremely small and is probably rapidly bound up with the cells of the nervous system when the parathyroids are not present to neutralize it, so that the continued influx of a minute quantity serves to bring about finally the violent symptoms. It was thought that this might be warded off even after tetany had begun by the use of emulsions of fresh dog's brain substance which, on being injected into the peritoneum, would afford an excess of suitable material for the linking of the toxic groups in the blood. This was, in fact, carried out in three cases, as follows:

Dog 148.—Two parathyroids (right) one large parathyroid and whole thyroid lobe (left) removed on February 2. On February 4, at 9.20 A.M., dog showed slight twitching, which gradually increased until 4.30 P.M. The emulsified brain of a normal dog mixed with salt solution injected into the peritoneum. At 8 P.M., tetany was milder, but at 10 P.M. very violent. Next day (February 5) dog seemed quite well all day —no twitching whatever, but somewhat somnolent. The third day, February 6, tetany reappeared and continued all day, being very violent in the afternoon. At 2.30 P.M., the brain of another dog was emulsified and injected into the peritoneum. The fourth day (February 7) there was moderate tetany and for six days following the dog apparently was in fairly good condition, becoming, however, gradually emaciated. Death on February 13.

Dog 150.—Complete parathyroidectomy; after four days violent tetany. Brain emulsion injected into peritoneum. Dog seemed to recover and stood up and walked about. Found dead next day, however.

Dog 154.—March 5, complete parathyroidectomy; March 8, beginning tetany—rather violent toward noon. Emulsion of brain injected into peritoneum. Dog recovered from tetany but sank into an apathetic condition, which lasted five days and ended in death.

Whether the action of the brain emulsion was such as is suggested above, or merely such as the injection of so much salt solution, or, still more probable, of so much emulsion of any other organ from a normal dog or of blood, it is hard to say. It is, indeed, curious to observe how slight a thing may suffice to stop the tetany. A whiff of ether will cause a complete cessation of tetany, usually also with cessation of the respiration, while the heart goes on for a time. The animal may be restored by artificial respiration, but unless this is prompt he dies. The tetany may reappear at once or it may remain absent for some time; particularly is this true as it seems, if any operation is performed on a dog while in tetany. When, however, the tetany is very severe these things affect it but little. Various sedatives, such as morphine, when given in rather large doses, will cut short the spasms, and when somnolent from the effects of such a drug the dog shows spasmodic movements only when frightened or on exertion.

Mention was made in the previous paper of the work of Verstraeten and Van der Linden, in which they attempted to show that, when fed on milk alone or on bread and water, parathyroidectomized dogs were less liable to violent attacks of tetany. They thought that in this way they had in some degree explained the supposed immunity of the herbivora from this condition of tetany. Although a case was there quoted which seemed to support their statement —a dog parathyroidectomized and fed on bread and water, which lived for twenty days without tetany—it seems, from more recent experiments, that the nature of the food has but little influence upon the course of the tetany.

Dog 144.—January 12. Complete parathyroidectomy; exclusively milk diet; January 14, distinct tetany, rigidity of legs, etc. Used after this for other experiments.

Dog 146.—Fed for two days on milk alone and this diet continued throughout. January 16, complete parathyroidectomy, one thyroid lobe being also removed. January 20, dog in violent tetany; given morphine and became somnolent. Tetany ceased; January 21, no tetany. January 22, violent tetany and death.

Dog 150.—February 9, given no food at all; February 10, given no food. Epsom salts produced purgation; intestines apparently cleaned out; February 11, complete parathyroidectomy; still given no food; February 12, dog seems well, no tetany; February 13, dog found in violent tetany this morning. Since February 9 has had nothing whatever to eat.

From these cases it appears that even when the intestinal tract is quite empty before and after the operation, tetany will develop with the maximum intensity; and the suspicion enters one's mind that possibly the explantion of the freedom from tetany in Verstraeten and Van der Linden's cases was, as it is in so many other negative results in connection with the tetany of parathyroidectomy, due to incomplete extirpation of the parathyroids.

Many writers on the subject of the symptoms resulting from extirpation of the parathyroids state that the animals may die either of the well-known tetany, or they may sink into an apathetic condition, becoming daily more and more emaciated, and perish after a number of days in an extraordinary cachectic condition. The question enters one's mind as to whether this is the direct result of the complete extirpation of the parathyroid, or possibly due to infection of the wound, or to modification of the usual tetany by the leaving behind of some minute portion of parathyroid tissue. It is to be noted that this condition of protracted poisoning may ensue when, after tetany is once well developed, its course is interfered with by washing out of the blood, etc. Often, too, when the symptoms of tetany are particularly mild and consist only in slight twitching, the progressive emaciation may be associated and in time lead to the death of the animal. This atypical course of the symptoms of parathyroidectomy is, however, not especially common, and in the majority of cases in which the parathyroidectomy is performed tetany appears frankly. Thus of our 39 cases, which were not known to be partial extirpation only of the parathyroids, tetany developed a well-marked form in 35. In all but two cases there was at some time twitching of the muscles, and possibly this was true also of those two and would have been recorded had they been more minutely watched. The fact remains, however, that in a certain small number of cases the tetany does not develop with its usual rapidly fatal result, but is overshadowed by the gradually increasing stuporous and cachectic condition, appearing in the course of this only as a moderate twitching of the muscles.

The cases of this sort which occurred in our series are noted below.

Further, there were at least two cases, such as 120 and 186, in which the repeated bleeding and infusion of salt solution warded off or relieved the tetany, which would otherwise have been quickly fatal, and allowed of the development of the slower process of poisoning. In some of these cases, such as 144, 171, and possibly also 169, the infection of the wound and the development of abscesses may have played an important part in the production of the symptoms; in others, however, such infections as are evidenced by an intense coryza, conjunctivitis and scattered skin pustules seem to be the result of the lowered resistance rather than the cause of the condition. The stupor and cachexia seem not to depend upon the coincident removal of the thyroid which was carried out in some cases, for it was quite as marked in the cases of simple parathyroidectomy. It is interesting that in at least one case (169) the parathyroidectomy was certainly incomplete, and there seems to be a good deal in favor of the idea that the absence of a tetany sufficiently violent to produce death at once, thus allowing the development of symptoms from the more general poisoning of the tissues, is due to the existence after the operation of some trace of parathyroid tissue—just sufficient to ward off the violent tetany, while not sufficient to maintain health.[1] The same explanation will apply perfectly to the results of washing out the blood at the beginning of the violent tetany.

Dog.	Duration of Exp.	Organ extirpated.	Results.
110	9 days	Thyroid and parathyroids	Slight tetany, conjunctivitis, gradual emaciation and weakening.
125	20 days	Parathyroids	No tetany, emaciation (bread and water diet).
132	16 days	Parathyroids and one lobe of thyroid	No tetany, gradual emaciation.
144	11 days	Parathyroids	Tetany repeatedly relieved by morphine, multiple abscesses, emaciation, apathy.
160	7 days	Parathyroids and thyroids	Conjunctivitis and coryza, emaciation, cachexia.
167	5 days	Parathyroids	Tetany, thyroidectomy; tetany continued, cachexia and death.
169	6 days	Partial parathyroidectomy	Gradual cachexia, tetany, slight infection, died at night.
171	10 days	Parathyroids	Gradually developing stupor, tetany on sixth and seventh days, extensive infection of wound, etc.

We have made several attempts to control the course of the tetany following parathyroidectomy by injection of parathyroid material. In the literature this has been attempted with varying results. Edmunds[2] fed a large quantity of parathyroid material to an animal in tetany without result. Vassale[3] obtained good results from the emulsion of thyroids in which the parathyroids were included, and Gley[4] confirmed these.

1 Since this was written further examination of the tissues of dog 186, removed at a second operation, showed that while the tetany had been quite intense there were still two portions of parathyroid tissue left imbedded in the thyroid.

2 Edmunds. Brit. Medical Journal, 1901.

3 Vassale. Rev. Sper. de Frematria, 1890.

4 Gley. C. R. d. la Soc. de Biol., 1891.

Lusena[1] describes several cases in which he prolonged life by transplanting parathyroids or by injecting parathyroid material subcutaneously. His results are astonishingly good as compared with ours, for, by the subcutaneous injection of parathyroid emulsion for eight days and then the subcutaneous transplantation of one parathyroid every fifteen days, the dog was kept alive for more than four months. Others were kept alive for over two months by the implantation of parathyroids. Lusena says nothing of the anatomical condition of these implanted parathyroids after the death of the animal, but on account of their usual rapid degeneration it seems remarkable that they should have been so effective in preventing tetany.

For our experiments see table on this page:

Of these dogs the last two were most interesting, and the clinical history of one at least may be given in greater detail.

Dog 170.—November 5. Parathyroidectomy attempted; only two of the parathyroids found; dog showed no symptoms after this; November 25, wound quite healed. Again operated upon and both thyroid lobes removed. On November 28, dog was found in violent tetany, with the usual respiratory disturbances, etc. The right jugular vein was opened and an emulsion of parathyroid of dogs (parathyroids from twenty dogs ground up in 2½ c.c. of sterile bouillon and strained through gauze) injected into the vein at 11 A.M. At 5 P.M., respiration was quiet and there are only slight twitchings observed. He walks stiffly, however, lifting his hind feet far too high in entering the cage. November 28, 8 A.M., no tetany; runs about well; slightly apathetic and stupid. At 1.45 P.M., tetany has begun again; 5.45 P.M., dog in violent dyspnea, very rigid, tetany very marked. Emulsion of parathyroid from thirty-seven dogs injected into jugular vein (the parathyroid material was obtained from the slaughter-house, where stray dogs are killed in great numbers); 7.30 P.M., dog still having severe dyspnea of Cheyne-Stokes character, lies on floor; tetany is fairly violent. November 30, 8 A.M., dog seems greatly improved and is able to walk about; no twitching; respiration quiet; runs about and eats. December 1, condition still good. December 2 and 3, slight twitching about temple. December 3, emulsion of parathyroid from twenty-two dogs injected into peritoneum. December 4, 5 and 6, dog well enough. December 7, slight twitching about head; 11 A.M., parathyroids of eighteen dogs emulsified and injected into peritoneum; 3 P.M., dyspnea and general tetany; respiration very stridulent. December 8, 8 to 10 A.M., dog in violent tetany, lying on floor rigid; inspiration difficult and squeaky; vomiting. Emulsion of parathyroid of cow in sterile water injected into inferior hypogastric vein. It is difficult to estimate the amount (8 c.c. of a cloudy emulsion made from about .25 grm. of dried parathyroid, probably fifteen dried parathyroids of cow). December 9, remarkable improvement; runs about and is playful; December 10, twitchings in muscles of neck; given emulsion of fresh dog's parathyroids (about fifteen dogs) intravenously; December 11, dog seems well, no tetany; December 12, dog seems quite well; occasional slight twitching about temples. December 13, 8.30 A.M., well-marked tetany and dyspnea, not, however, of maximum violence; no parathyroid material was obtainable and the dog died at 3 P.M. Autopsy revealed no infection of wounds; organs in general, normal. Several accessory thyroids of small size in tracheal region and aortic arch.

Dog.	Operation.	Tetany.	Treatment.	Result.
113	April 10	April 15	April 15, three parathyroids of cow intraperitonally.	Twitching continued. Emaciation, apathy; lived five days.
140	Jan. 16.	Jan. 20	January 20, subcutaneous injection of emulsion of beef parathyroid, also of morphine.	January 21, recovered from tetany. January 22, violent tetany and death.
170	Nov. 25 Thyroparathyroidectomy.	Nov. 28	Various injections intravenously of emulsion of parathyroids.	Temporary relief with each injection.
178	Nov. 22	Nov 26	One intravenous injection of parathyroid emulsion.	Recovery from attack of tetany; death five days later from infection.

Evidently after complete parathyroidectomy the life of the animal can be maintained only with the greatest difficulty by the injection intravenously of relatively large quantities of parathyroid material. Even this, as shown in the case just related, was insufficient to prevent the repeated reappearance of the tetany, so that it seems probable that the cases in which the symptoms are relieved for a long time by insignificant doses given subcutaneously, are instances in which the extirpation of the parathyroids was incomplete. From this it follows that the treatment of the tetany which has been seen to follow extirpation of the thyroid (with the parathyroids) in human beings, by the used of parathyroid extracts, would probably be almost impracticable, although the use of such material might perhaps be beneficial in

[1] Lusena. Fisiopatologia dell' Apparecchio tiro-paratiroideo, Firenze, 1899.

those cases in which symptoms are due to a less intense parathyroid insufficiency. The condition is different from that found after extirpation of the thyroid alone, in that the symptoms appear so rapidly and are so quickly fatal that there is no time to apply the usual methods of administration of the organ extracts, which are so effective in the case of myxedema and in which possibly a cumulative or continuous action is produced. The emulsion or extract of parathyroid, to produce its maximum effect, must be introduced into the veins in considerable quantity.[1] After this process the result may be astonishing, as illustrated by our notes on dog 178:

Dog 178.—November 26, 4.30 P.M., dog rigid and tetanic; respiration 60, labored; emulsion of parathyroids from sixteen dogs injected into jugular vein. Dog stopped breathing several times, but was resuscitated; seemed practically moribund. 5.50 P.M., dog lying stretched on floor, limbs very stiff; Cheyne-Stokes respiration; 8.30 P.M., still lying stiffly on side; tetanic spasms in muscles; breathing regular. November 27, 9.30 A.M., dog is able to stand and walk about; respiration perfectly quiet. No signs of rigidity or tetanic spasm.

Dog.	Date of operation.	Interval before development of tetany in days.	Date of first tetany.	Duration of tetany in days.	Date of death.	Nature of symptoms.
110	April 2,	2	April 4,	6	April 10,	slight tetany.
120	April 25, one lobe. April 29, remaining lobe.	2	May 1,	8	May 9	violent tetany, cured temporarily by bleeding and infusion.
152	February 27, 3 parathyroids removed. March 18, one thyroid removed. April 9, second thyroid removed.	8	April 17,		April 17,	violent tetany
160	Oct. 20,				October 27,	emaciation and cachexia.
162	Oct. 21,	8	October 29,	6	November 4,	slight tetany.
170	November 5, 3 parathyroids removed. November 25, thyroids removed.	3	November 28,	15	December 13,	violent tetany, parathyroid treatment.
166	January 10,				January 22,	abortion, emaciation, no tetany.
173	January 10,				January 12,	no symptoms observed.
179	January 16,	3	January 19,		January 19,	violent tetany.
185	January 17,			11	January 28,	slight tetany; apathy.
186	January 10.				February 1,	emaciation, apathy, no tetany except on one day, then slight.
187	January 14.				January 23	slight tetany; apathy.

For a time Gley and others held the belief that the parathyroids are merely undeveloped bits of thyroid tissue which, if the thyroids be destroyed, can develop into thyroid tissue. This idea, however, has been disproved by anatomical, embryological and experimental work, and the glands recognized as distinct organs. Certain authors, however, hold that there is a functional relation between thyroid and parathyroid. Moussu, basing his results on changes in the parathyroids after extirpation of the thyroids in rabbits, put forward this idea and disagreed with Gley's theory. He found that after extirpation of the thyroids the parathyroids enlarged and became more vascular. This, as we now see, was probably an attempt at compensatory hypertrophy, on account of the removal of the other two parathyroids, which lie in or upon the thyroids, and not more directly related to the removal of the thyroid. Gley showed that there is iodine in the parathyroids, and concluded that this established a functional relation between them. Vassale and Generali, and, later, Lusena, determined that the effects of parathyroidectomy came on more suddenly and were more violent than those of thyroparathyroidectomy, which began slowly and usually allowed the animal a longer lease of life. Indeed, Lusena claimed to have stopped the progress of the tetany of parathyroidectomy by excising the thyroid during the convulsion.

Vassale and Generali explain this as follows: The parathyroids ordinarily neutralize poisons produced in the course of metabolism. Metabolism is decreased by thyroidectomy, and therefore the task of the parathyroids will be less and the disturbances in a parathyroidectomized animal less. Lusena, on the other hand, regards the thyroid as a gland in which toxic substances are collected from the blood, and, under the necessary influence of the parathyroid glands, converted into the innocuous colloid material. On removing the parathyroid glands this conversion ceases, and after a few days the poison

[1] In order to avoid the confusing effect of the injection of large quantities of fluid which of itself might temporarily relieve the tetany, the parathyroid emulsion was made in a minimal quantity of salt solution, usually 2 to 3 c.c. only.

may be returned to the blood and the tetany thus come on suddenly. On the other hand, if the thyroid and parathyroid are removed altogether, the poison begins at once to be present in the blood and the symptoms therefore appear gradually, but from the beginning. The beneficial effects of the removal of the thyroid during the tetany are evidently to be explained on the ground that stored-up unchanged toxic material, which might be returned to the blood, are thereby removed. That such an accumulation of toxic materials in the blood does not occur in thyroidectomy when the parathyroids are left, is explained by the presence of accessory thyroids and of the glandular part of the hypophysis which is assumed to have a similar function.

There are many weak points in this theory, which is based on several assumptions which are hardly justified by the facts at our disposal. For example, we have no proof whatever that the thyroid has any such antitoxic or neutralizing action in the production of colloid. We cannot produce tetany by the complete extirpation of the thyroid as long as the parathyroids are left, and it seems that to refer this to the action of the infinitesimal and inconstant accessory thyroids, and to the hypophysis of which we know nothing, is an evasion. The tetany is at once cured by the introduction of pure parathyroid emulsion or extract into the vessel, even when the thyroids have been extirpated.

It seems more probable, therefore, that these glands are much more independent in function than Lusena would have us believe. Our series of cases of extirpation of the thyroid together with the parathyroids is small, and the results complicated by further experiments upon the same dogs. See preceding page.

The course of events in dogs 120, 152, 170 and 179 could not have been distinguished from that in the pure parathyroidectomy, the longer duration of life in some after the beginning of tetany being entirely due to the treatment. In the other cases tetany was slight

Author.	Case.	Interval after operation before beginning of symptoms.	Duration of symptoms.	Severity and nature of symptoms.
Ughetti and de Mattei	10 dogs	2 to 3 days	4 days—1 case 6 days—3 cases 12 days—3 cases 15 days—3 cases	cachexia, dyspnea and tetany.
Albertoni and Tizzoni	1 dog	3 days	4 days (killed)	severe tetany.
	2 dogs	2 days	several days (killed)	severe tetany.
	3 dogs	3 days	15 days	cachexia dyspnea and tetany.
Gley	1 dog	43 hours	11 days	
	1 dog	41 hours	6 days	
	1 dog	22 hours	2 days	
	1 dog	42 hours.	3 days	
	1 dog	64 hours	(killed)	
	1 dog	61 hours	74 hours	
	1 dog	66 hours	86 hours	
	1 dog	23 hours	9 days	
	1 dog	30 hours	50 hours	
	1 dog	41 hours	7 days	
Masoin	1 dog	18 hours	4 days	
	1 dog	24 hours	11 days	
Verstraeten and Vanderlinden	1 dog	1 day	5 days	
	1 dog	2 days	9 days	
	1 dog	3 days	3 months	
Regnier and Paulesco	1 dog	1 day	1 day (killed)	
	1 dog	1 day	3 months	
Jouty	1 dog	2 days	5 days	violent tetany.
	1 dog	6 days	7 days	violent tetany.
	1 dog	3 days	1 day	violent tetany.
	1 dog	2 days	1 day	violent tetany.
Lusena	1 dog	4 days	11 days	tremors and shaking; coma.
	1 dog	3 days	10 days	
	1 dog	3 days	5 days	
	1 dog	4 days	12 days	
	1 dog	4 days	7 days	
	1 dog	5 days	19 days	
	1 dog	3 days	7 days	
	1 dog	4 days	16 days	
	1 dog	5 days	17 days	
	1 dog	3 days	11 days	
	1 dog	2 days	12 days	
	1 dog	2 days	13 days	
	1 dog	4 days	14 days	
	1 dog	4 days	14 days	tetany at second day, accessory thyroid.
	1 dog	2 days	2½ days	

or absent and the course of the illness somewhat prolonged. For comparison with these, I may quote from the literature such cases as have been observed after this operation of thyroparathyroidectomy. See table on preceding page.

From this list of cases it is seen that symptoms, sometimes those of violent or moderate tetany, sometimes rather those of gradual emaciation, predisposition to infection, etc., usually with slight tetany or tremors, appear after a period of eighteen hours to eight days after the operation, usually after two or three days. The course of the affection, to judge from this table, is by no means so violent and rapidly fatal as in the case of simple parathyroidectomy, although sometimes, as in at least four of twelve of our cases and in all of Jouty's four cases, the tetany is recorded as severe. The uniformity of the fatal tetany resulting from parathyroidectomy alone may be illustrated by the above table:

Dog.	Parathyroidectomy Interval before appearance of tetany.	Duration of tetany.	Its character.	Result.
104	2 days	2 days	violent	died.
109	3 days	—	violent	died.
113	5 days	5 days	moderate	died.
115	2 days	1 day	violent	killed during tetany.
116	8 days	—	violent	killed during tetany.
117	7 days	—	slight	still alive.
121	3 days	—	violent	killed in tetany.
124	3 days	—	violent	killed in tetany.
126	2 days	—	violent	died.
133	27 days	—	moderate	killed.
138	2 days	—	violent	died.
139	10 days	—	violent	killed.
141	7 days	—	violent	killed.
144	2 days	9 days	slight	given morphine, etc.
146	4 days	2 days	violent	given morphine, etc.
147	3 days	—	violent	killed.
148	2 days	9 days	violent	brain emulsion injected.
150	2 days	1 day	violent	died.
153	5 days	—	violent	killed
154	3 days	6 days	violent	brain emulsion injected.
157	1 day	3 days	violent	salt infusion.
167	2 days	3 days	slight	died, secondary thyroidectomy.
172	7 days	—	violent	died, secondary thyroidectomy.
175	2 days	—	violent	died, secondary thyroidectomy.
185	1 day		moderate	infused.

Unfortunately of the twenty-five cases nine were killed during the first violent attack of tetany, so that one cannot be absolutely certain that they would have died on the day when the tetany developed (as represented by the dash in the column headed "Duration of Tetany"). Nine cases died in the first attack of tetany, others underwent a protracted affection as a result of treatment of one sort or another. Lusena gives a table of nineteen cases of parathyroidectomy in which death occurred with tetany always within five days after the operation and within thirty-six hours of the onset of tetany.

On the whole then, although neither from our own cases nor from the others recorded in the literature can we arrive at results so uniform and satisfactory as Lusena's, the cases in which the parathyroids alone are extirpated seem to enter a violent tetany, leading more rapidly to death and with less tendency to the development of the symptoms of emaciation, cachexia, etc., than in the cases of thyroparathyroidectomy. Nevertheless, a considerable proportion of those cases do develop violent tetany—tetany which quickly leads to the death of the animal—and in practically all the cases the symptoms began quite as soon as in the other cases. With regard to Lusena's statement that the removal of the thyroid after the tetany of parathyroidectomy has begun will cut short the tetany, I have already made some remarks. Since the publication of that paper several experiments have been made along these lines. They are as follows:

Dog.	Parathyroidectomy.	Tetany.	Thyroidectomy.	Results.
128	Oct. 2.	Oct. 25 10 A.M.	Oct. 25 10 A.M.	Tetany diminished for a few hours. Began again at 3 P.M. Dog died in tetany, 8 P.M., Oct. 25.
138	Nov. 23	Nov. 25 9 A.M.	Nov. 25 9.30 A.M.	Tetany increased and dog died at 3.20 P.M. Tetany was extremely violent and dog was bled for another experiment.
165	Oct. 24	Oct. 26 3 P.M.	Oct. 26 5 P.M.	Tetany disappeared. Extensive secondary hemorrhage occurred. Dog died Oct. 30.
167	Oct. 27	Oct. 29 12 NOON	Oct. 29 7.30 P.M.	Tetany of varying intensity throughout Oct. 30. Very slight tetany Oct. 31. Tetany disappeared. Dog apathetic and weak Nov. 1. Death Nov. 2.
172	Nov. 14	Nov. 21 9.30 A.M.	Nov. 21 11 A.M.	Died in violent tetany at 12.45 P.M. Tetany reappeared at once on recovery from ether.
175	Nov. 19	Nov. 21 2 P.M.	Nov. 21 3 P.M.	Tetany reappeared and became progressively more violent until dog's death at 6.15 P.M.

Of these six experiments four showed absolutely no effect upon the course of the tetany produced by the thyroidectomy. In one (165) the tetany was very slight before the thyroidec-

tomy and disappeared entirely after it. In 167 the tetany, also slight, continued, but became progressively milder until it disappeared just before death, which occurred four days later.

Lusena describes thirteen cases in which he either extirpated the thyroids or ligated their vessels, after having practised parathyroidectomy and allowed the tetany to appear, and without exception in these cases the tetany diminished or disappeared and the dogs continued to live for from four to twelve days after their second operation. In five cases in which instead of complete extirpation of the two thyroid lobes only one was extirpated or tied off, no effect upon the tetany was produced.

Our cases, except for the two in which the tetany was slight, and in which the dogs under ordinary circumstances might have been expected to show remissions and to live some days, showed absolutely no effect from the extirpation of the thyroids after tetany had commenced. These experiments one after another were so striking that, despite their relatively small number, we felt quite convinced of the contrary to Lusena's statement. The theory which Lusena has constructed is difficult to disprove, because it deals for the most part with hypothetical substances and with organs variable in number and position.

It is difficult to understand his position with regard to the action of the thyroid after parathyroidectomy, for, while in one place he states that the removal of the influence of the parathyroid allows poisonous substances to accumulate in the thyroid whence they are then suddenly returned to the blood, producing tetany, he does not explain how, after this has occurred, the removal of the remaining empty thyroid can ameliorate this tetany. He thinks that the accessory thyroids and hypophysis must be considered as rendering impossible any complete extirpation of the thyroid, but does not find that they accumulate and empty out sufficient toxin to appreciably alter the clinical picture resulting from the thyroparathyroidectomy. Presumably Lusena would explain the curative effects of parathyroid therapy as a stimulation to the thyroid to continue to neutralize poison. The result, however, is the same when the thyroid has been extirpated and then it would be necessary to refer the stimulation to the accessory thyroids and hypophysis, a theory which does not seem probable, but which we cannot absolutely disprove. The injection of fresh thyroid secretion, according to this theory, should, however, be quite as efficacious, if not more so, than the injection of parathyroid to stop the tetany, but even in Lusena's hands this is not so.

On the whole, although the cases reported by Lusena and others in the literature have shown a milder course after thyroparathyroidectomy than after parathyroidectomy, we cannot support this as a general rule, for in half of our cases the symptoms were of the maximum severity. Nor can we support Lusena's statement that subsequent thyroidectomy stops the tetany, for in four out of six of our cases it had absolutely no effect and the dogs proceeded to a more and more violent tetany and died. We therefore regard the tetany not as the result of a disturbance of the thyroid from the loss of the influence of the parathyroids, but as the direct result of the loss of parathyroid function, especially since it may be directly cured by injection of parathyroid emulsion in the absence of the thyroid.

TWO CASES OF PERNICIOUS ANEMIA DUE TO THE DIBOTHRIOCEPHALUS LATUS.

BY ALFRED MEYER, M.D.,
OF NEW YORK.

There is perhaps no pathological state so commonly met with in private or in hospital practice, whether by the general practitioner or the specialist, as that of secondary anemia. In many cases the cause is readily ascertained: a hemorrhage, convalescence from a long febrile disease, a carcinoma, a chronic nephritis, a malarial toxemia, a tuberculosis, a leucemia; and the success of the treatment instituted depends more or less upon the success with which we can reach the etiological factor. Other secondary anemias—as for instance those accompanying chronic cystic degeneration of the kidneys—are in most cases not even diagnosed and their causative treatment therefore not even discussed. But there is a type of severe secondary anemia due to the presence of certain parasites in the intestines, notably the *Anchylostomum duodenale* and the *Dibothriocephalus latus* which, when recognized, are not only amenable to treatment by anthelmintics, but so prompt and striking is the cure at times that almost the whole field of medicine may be searched in vain for similar illustrations of its beneficent power. It ought to be both a warning and a stimulus to medical men not to be satisfied with the routine administration of iron and arsenic, especially in progressive anemia of obscure origin or long duration, but to examine the stools for links and ova, for upon their discovery may depend absolutely the issue of the case. The temptation to use iron is particularly great, for have we not a very large list of iron preparations to choose from? And is not the enterprise of chemists and pharmaceutical houses continually adding to the number? And may we not, varying the poet's language a bit, say with perfect truth that the medical profession is "Dragging a lengthening chain of iron behind it?"

It has often been observed and commented upon by medical men having large hospital services that if a rare disease occurs in the service, or a rare complication of a common disease, the same is not infrequently met with again after a short interval. Within the present year I have had confirmation of this "law of chances," if

you choose, in the wards of Mt. Sinai Hospital. For many years the stools of every patient suffering from a high grade of anemia, for which no cause could be found, have been systematically searched for intestinal parasites and their ova; never, so far as I know, was there found a single case of *Dibothriocephalus latus* anemia, and then, curiously enough, two cases followed each other within about a year—both of them anemias of the severest kind, clinically and microscopically. I shall only give extracts from the complete histories of the cases as taken by the house staff.

Case I.—Edith H., twenty-two years old, domestic, born in Finland; admitted November 6, 1903; marked tuberculous history on mother's side, but no subjective tuberculous history. Ill one year with weakness and increasing pallor with occasional vomiting. On admission the pallor was marked and of a yellowish hue, the conjunctivæ fatty looking, loud systolic murmurs at the apex and in the aortic area. Slight edema of extremities. No petechiæ.

Blood.—Red blood corpuscles, 780,000; white blood corpuscles, 5,000; hemoglobin, 15 per cent.; poikilocytosis, microcytes, macrocytes, cells showing polychromatophilic degeneration, some normoblasts.

Differential count 100 cells: Polynuclears, 37 per cent.; mononuclears, 8 per cent.; lymphocytes, large and small, 54 per cent.; mastzellen, 1 per cent.

Numerous ecchymoses upon arms and about ankles and trochanter. Large retinal hemorrhages, especially in the right eye. Temperature 100 to 102° F. for first twenty days in the hospital. The first few days no ova were found in the stools. On the eighth day after admission ova were found, but not recognized as those of any known parasite. A few days later 30 grains of thymol were given in two doses and four hours later a tapeworm was passed which proved to be a *Dibothriocephalus latus*, measuring 8 feet and 8 inches in length. Ova were still found in the stools from time to time, until nine days after the expulsion of the worm, when they disappeared for a period of three weeks and then were found again on one day only. For fear that there might be a second *Dibothriocephalus latus*, thymol and male fern were given successively without the expulsion of another parasite, and after that no ova were found during the remaining five weeks of the patient's stay in the hospital. The improvement of the patient was immediate and truly marvelous. The mucous membranes steadily and rapidly improved in color, she gained thirteen pounds in weight, the hemoglobin rose from 15 to 63 per cent. and the red blood cells from 780,000 to 3,460,000.

Case II.—The history of this patient was as follows: Is still in the Mt. Sinai Hospital. Jennie L., twenty-five years old, married, born in Russian Poland; admitted December 7, 1904. First child born four months ago. Her illness began about two months before birth of baby with swelling of feet and legs. Pallor began about the same time and progressively increased. Says that she saw segments of worm in stools about one year before. Marked pallor of body and mucous mebranes with an icteric tinge; edema of lids and of extremities; systolic blowing murmur at apex and pulmonic area. Temperature, 101.2° F.

Blood.—Red blood corpuscles, 660,000; white blood corpuscles, 5,400; hemoglobin, 10 per cent.

Differential count, 200 cells; polynuclears, 53½ per cent.; eosinophiles, ½ per cent.; large mononuclears, 15 per cent.; large lymphocytes, 6 per cent.; small lymphocytes, 25 per cent. Marked poikilocytosis and basophile degeneration; one normoblast, 6 megaloblasts.

Dr. Grüning, who made the fundus examination, reported numerous hemorrhages along the veins, also hemorrhages where there are no veins. When I first saw this patient and before the report of the stool examination was handed in, I was inclined to regard the case as one of progressive pernicious anemia of the pregnant, of which seven fatal cases were originally reported by Gusserow of Zurich, Switzerland, in 1871, and of which type I have reported one case without autopsy in the Mt. Sinai Hospital reports of 1898. I might very reasonably omit this reference to my first erroneous impression of the case, because it was not a final diagnosis and necessarily was subject to revision after the stool examination which I immediately ordered, and which examination had actually been begun by the house staff before the order was given. But I mention it deliberately in order to show the very grave condition of the patient that would have justified such an opinion—an opinion which, if verified, would have meant death in a few weeks. The following day a large number of ova of the *Dibothriocephalus latus* were found in the stools. Thymol was given in half-dram doses with the same precautions as in the first case in regard to withholding the food and the administration of castor oil the day before and two hours after the remedy, but the worm was not expelled. The same negative result with 2½ drams of the ethereal extract of filix mas.

December 19: Red Blood corpuscles, 556,000 (a loss in eleven days of 100,000).

January 3: Red blood corpuscles, 468,000 (another loss of about 90,000).

January 7: Some segments of *Dibothriocephalus latus* passed and ova were found for the first and only time since the administration of anthelmintics was begun. Many and varied doses of thymol, filix mas and pelletierine sulphate were employed but without expelling the parasite (so far as known).

January 16: Red blood corpuscles, 1,176,000 (nearly trebled in thirteen days); white blood corpuscles, 5,800; hemoglobin, 21 per cent. (doubled in the same period).

It is hard to determine why in some cases the *Dibothriocephalus latus* develops only slight gastric or nervous symptoms and in others the severest grades of anemia. Braun (Thier. Parasiten des Menschen, p. 202) believes the latter due to the absorption by the hosts of poisonous material excreted by the parasite. In this connection it is interesting to note that in the second case reported by me the improvement in the anemia followed soon after the use of anthelmintics and the disappearance of eggs from the stools.

The worm has not been discovered in the stools up to the present time (February 2), but the persistent absence of ova for a period of twenty-six days[1] makes it probable that the same has been expelled and escaped the observation of the nurse.

I saw the patient this afternoon. She is steadily improving. The last blood examination shows: Red blood corpuscles, 1,648,000 (nearly quadrupled in twenty-four days); hemoglobin, 36 per cent (nearly quadrupled in twenty-four days). Only a faint systolic murmur is still present in pulmonic area.

In view of the claim that has been made in some quarters "that healing may occur without removal of the worm or before the worm has passed and that possibly the improvement is only a temporary improvement of a pernicious anemia," I have determined to keep the patient under observation for some months at the hospital in order to continue the search for ova, and, after her discharge from the institution, to watch for a relapse of the anemia. I shall take pleasure in reporting upon her case again at some future time.

A CASE OF DIBOTHRIOCEPHALUS LATUS INFECTION, CAUSING PERNICIOUS ANEMIA; WITH COMPLETE RECOVERY.[2]

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The symptoms produced by the presence of intestinal worms are peculiar in the facts that they vary greatly at different periods in the same person and that the symptoms caused by several varieties of parasite may be identical. Thus Davanic, the French helminthologist, says that "*Tænia, Bothriocephalus, Ascaris* and *Oxyuris* may all give rise to similar phenomena." The *Dibothriocephalus*, however, affords an exception in that at times it is capable of producing a most serious and even fatal anemia, which may assume a truly "pernicious" type, with hemorrhages. The symptoms of parasitic infection of the intestine by the larger worms are explainable upon several grounds. For example: (1) A very large worm or colony of worms may cause mechanical obstruction. (2) Active worms may irritate the intestinal wall, giving rise to loss of function, and causing remote reflex nervous disturbances. (The consumption of nutritive material by the worm itself is relatively so small as to be unworthy of consideration.) These explanations, however, prove insufficient, for in the most serious cases there are nervous phenomena and degrees of anemia which are only to be accounted for upon the theory that the worms periodically, if not constantly, excrete toxic substances which are absorbed from the alimentary canal. Such symptoms are convulsions, tremors, paralysis, chorea, perversions of special sense, great weakness, both mental and physical, and extreme anemia with hemorrhages. (3) The theory of special toxemias produced by the worms would satisfactorily account for all of these symptoms, and is reinforced by the fact that reactionary changes, such as eosinophilia, may be produced in the blood. The absence of symptoms or their intermittency may be accounted for, as such phenomena are explained with other parasites, as for example the *Plasmodium malariæ, i.e.*, the parasites themselves, may possess varying degrees of activity, depending upon food or other conditions; the human system may present varying degrees of resistance, or the blood may possibly supply varying quantities of antitoxins.

In further confirmation of the special toxemia theory is an exceedingly interesting series of experiments reported in 1904 by S. Isaac and von den Velden[1] who discovered that when an extract of the fresh proglottides of the *Dibothriocephalus latus* was added to blood serum from a patient harboring the parasite, an albuminous precipitin was obtained. This precipitin reaction was not obtainable from the blood serum of uninfected persons, and the reaction is therefore specific.

Tallqvist and Schaumann have also lately shown that serious anemia may be produced in dogs by inoculating them with an extract derived from the fresh parasite.

It is an interesting fact that in the pernicious anemia caused by the *Dibothriocephalus latus* eosinophilia appears to be absent, as it is from idiopathic pernicious anemia, although it is a common enough phenomenon in connection with other forms of intestinal parasites. In three cases of such parasitic infection the presence of an unusually high degree of eosinophilia has led me to have the patients' stools searched for worms or ova, which thus for the first time were discovered.

The *Dibothriocephalus latus* was so named by Linnæus in 1758, although it was known to exist at a much earlier date. It is also called *Tænia lata* in the tenth edition of Linnæus' Systema Naturæ. It is often erroneously called "*Bothriocephalus*," and was classed by Bremser in 1819 in the germs bearing that name. Dr. C. W. Stiles informs me, however, that "for some years it has been known to zoologists that the species *latus* could not remain in the genus *Bothrio-*

1 Fifty-one days at time of reading proof.

2 Read before the New York Academy of Medicine, February 2, 1905.

cephalus; and Luehe, in 1899, made it the type of the new genus *Dibothriocephalus*—thereby restoring its original name."

The *Dibothriocephalus latus,* or "broad tapeworm," possesses wide, flattened segments that vary much in size, and may number 3,000 or 4,000, which makes it the longest human tapeworm, its length sometimes exceeding 30 feet. The head, which is club-shaped, is unarmed with hooklets or rostellum, and is depressed at the sides, where there are two longitudinal deeply grooved suckers. There is a long, thin neck, and, unlike many tæniæ, the body tapers toward both extremities.

Extending from the neck, the proglottides, which have yellowish margins and blue-gray centers, are very wide, but short in the anteroposterior diameter. The largest, according to Dock,[2] measure 10 to 18 mm. by 5 to 6 mm. The yellowish, rosette-like uterus is centrally situated, and cirrhus and vagina open immediately behind it on the median ventral surface. The testicles are situated laterally. The elliptical ova are brown and granular, with a thin capsule, and average .07 mm. in length by .045 mm. in width. At one extremity is a curious lid, like a small trapdoor. The number of worms found in the same person may be quite numerous. James Ewing found three in one patient, and Böttcher as many as 48 in a woman. The parasite is sometimes associated with other species in the human intestine.

It was first demonstrated by Max Braun that the intermediate hosts of the parasite are certain fish, like the pike, carp, salmon and trout, in which the *Plerocercus* is found, hence the parasite abounds in countries in which these fish are extensively used as food and sometimes are eaten raw, or salted or smoked without cooking, processes which do not destroy the embryos. The mode of infection of the fish has not yet been satisfactorily explained, but cats and dogs are known to harbor the parasite. It is found in man in the Baltic provinces of Russia, whence it is carried to Finland and Sweden, and sometimes to Holland, Bavaria and Rumania. It is also found in man in parts of Switzerland, in Mexico, and is said to be the most frequently observed cestode of Japan, where it infests both man and the dog. In certain localities a large proportion of the community may become infested, for example, near Lake Geneva 20 per cent. and in Moscow 9 per cent. of those examined have shown either the worm or its ova.

In the United States a few cases have been reported from time to time among immigrants. Dock[3] reported two from Galveston, Texas, and one from Leadville, Colo. Max Braun refers to a case in Philadelphia, Theodore Janeway reported one case, James Ewing one case (in New York), and Horace M. Bellows a case in a girl who had been traveling in Egypt and passed 19 feet of the tapeworm after taking pelletierine. Wm. N. Berkeley[4] reported four cases in 1903, all among immigrants. One of these patients was a Russian woman, who had passed segments of the worm at intervals during eight years, in all of which time her only symptom had been occasional slight abdominal discomfort. After a dose of oleoresin of aspidium the worm was expelled complete. Two cases were referred recently for diagnosis to Dr. T. W. Hastings, at the Clinical Laboratory of the Cornell University Medical College. In both cases the patients were immigrants recently arrived in New York.

In the *Veterinary Magazine*[5] Dr. C. W. Stiles, writing from the Bureau of Animal Industry, states that "Of all the 300 or more specimens of human tapeworm from patients in various parts of this country which have passed through my hands during the last three years, three specimens have been *Dibothriocephalus latus,* and the rest have been *Tænia saginata.*"

Dr. Stiles informs me that "in the United States Public Health and Marine Hospital Service collection is a specimen of *Dibothriocephalus latus* sent in by Assistant Surgeon Claude C. Pierce from Mullet Key, Fla., in 1902. This specimen came from a dog which was brought over by a Norwegian vessel."

In none of these cases in man does it appear that anemia reached a pernicious or even serious type.

In 1886 Gustav Reyher[6] reported 13 cases of pernicious anemia due to this parasite, all of which were cured by removal of the worm, and in the same year Heinrich Schapiro[7] reported another case, also cured, after the red blood cells had been reduced to 837,000 and the hemoglobin to 30 per cent. In 1887 J. W. Runeberg[8] cited seven cases with pernicious anemia, all resulting in cure.

All of these pernicious cases, however, were studied before the day of accurate differential blood counts, and the diagnosis of the variety of anemia was based upon the red blood cell and hemoglobin estimation alone.

The case which appears to most closely resemble the one herein reported in detail is described by Witold Orlowski in the *Krakow Medical Journal.*[9] The article, being Polish, I am naturally unable to read, but from the Greek nomenclature of the blood examinations (which appears to constitute a sort of medical Volapük), I have gathered the following data: The minimum blood count, several having been made, showed: Red cells, 295,375; white cells, 3,170; hemoglobin, 15 per cent.; color index, 1.93; megalocytes, 6 (400 counted); lymphocytes 52 per cent., and eosinophiles 1 per cent. There were no normoblasts or megaloblasts. The patient appears to have recovered, at least to have improved greatly under treatment, for the last blood examination records: Red cells, 3,125,000; white cells, 3,720; polymorphonuclear cells, 64 per cent.; lymphocytes, 32 per cent.; microcytes, 6 per cent. and eosinophiles, 1.5 per cent.

The case herewith reported (with specimens of ova and stained uteri and proglottides, prepared by Dr. T. W. Hastings, of the Cornell Clinical Laboratory) was studied in 1904 in the wards of Bellevue Hospital, in the service of Dr. C. L. Dana and the writer.

The patient was a boy, aged seventeen years, a native of Finland, employed as a plumbers' apprentice. He gave no family history of importance or any personal history until about seven months prior to admission to the hospital, when he first noticed increasing pallor. A month later repeated attacks of epistaxis occurred on successive days, one of which lasted half a day. He also began to suffer from dyspnea on exertion. A month before admission his legs became edematous, and as his weakness increased, he lost some 30 pounds in weight, and having had about 50 attacks of epistaxis, he applied to the hospital for relief. A month before admission he took a dose of a decoction made from some seeds which had been sent him from Finland to rid him of a tapeworm of several years' growth. He said that very many of his countrymen were similarly afflicted. He passed about four feet of the worm, as he thought, with the head attached.

had a transient attack of blindness in the left eye the week before the examination. The patient had several more severe attacks of epistaxis, which were controlled with difficulty. The temperature on admission was 104° F. for three days, with a pulse of 120, and for two weeks thereafter it ranged between 100° and 101° F., becoming subsequently normal. Soon after admission the ova of the *Dibothriocephalus latus* were observed in the feces, with a few red blood cells. During a period of eight weeks the patient was given five doses of the oleoresin of aspidium, 3i in each dose, and on four occasions thereafter he passed several feet of the parasite,—in all about 25 feet,—but no head was discovered. The administration of male fern was preceded by a period of starvation, and followed in twelve hours by castor oil. In addition the patient received adrenalin chloride, Fowler's solution, Basham's mixture and sodium cacodylate. At the height of his illness the patient had incontinence of both urine and feces. After three weeks of treatment the hemorrhages ceased and the general condition, including the anemia, began to show steady improvement, which was maintained until the patient was discharged, after three

Date, 1904.	Red cells.	White cells.	Hemoglobin.	Polynuclear.	Lymphocytes.	Large Mononuclear.	Transitional.	Eosinophiles.	Mast cells.	Normoblasts.	Megaloblasts.	Color index.	No. counted.
April 4	608,000	2,000	20%	70.1%	26.3%	2.9%	0.	0.3%	0.3	2.6	0.	1.6	600
" 7	760,000	3,600	20	60.	24.5	11.5	4.	0.	0.	3.	4.		200
" 16	1,000,000	3,300	20	65.	22.5	6.	4.5	2.	0.	6.	2.	1.	400
May 13	2,884,000	6,000	60	77.5	10.	4.	3.5	4.5	0.5	0.	0.	1.19	300
June 14	3,776,000	10,000	85	60.	16.	5.	9.	9.	0.	0.	0.		300
Nov. 24	5,680,000	10,000	98	55.	26.6	6.3	5.6	5.6	0.6	0.	0.		300

Upon admission the boy presented a typical clinical picture of pernicious anemia. He appeared well nourished, but was of a pale lemon-yellow color. There was moderate edema of the legs and the cervical glands were enlarged upon the left side. The pulse was quick and compressible; the heart appeared normal in size, but presented an apical systolic bruit, and another at the base transmitted to the muscles of the neck; the pulmonic second sound was accentuated; the leg reflexes were diminished, but there were no other nerve symptoms; the abdominal viscera appeared normal; the urine was slightly albuminous, with a few hyaline casts and uniformly low specific gravity, which, on repeated examinations, was between 1.007 and 1.010; there was moderate dyspnea and a few crepitant râles were heard at the base of the right lung. The patient had repeated epistaxis, but examination of the nasal cavities revealed nothing abnormal. Dr. Alexander Duane, who examined the eyes for me, reported the optic disks as being very pale, with small veins and arteries, secondary atrophy and several small hemorrhages in the fundus, but none in the maculæ or periphery; motion of the eyes and vision was normal, but the patient had

months, apparently cured and with normal blood. A table of six representative blood analyses is presented above.

The features of special interest in the blood examinations are as follows: (1) The complete restitution of the red cells from a count of 608,000 to 5,980,000, and of the hemoglobin from 20 per cent. to 98 per cent.; (2) the early high-color index (1.6); (3) the absence of eosinophiles in the earliest examinations; (4) the early high percentage of macrocytes; (5) the early presence of normoblasts and megaloblasts, and (6) the early leucopenia.

These characteristics fairly entitle the case to be classed as one of extreme pernicious anemia with complete recovery. Doubtless the hemorrhages greatly intensified the anemia, but the differential count showed more than a mere secondary anemia, *i.e.*, a specific anemia caused by some form of toxemia produced by the intestinal parasites.

This case is of exceptional interest as forming a type of pernicious anemia with definite etiology. The question has lately been much discussed as to whether there is such a disease as a "primary idiopathic" anemia, originating *de*

novo in the blood-forming structures of the body (bone marrow, various glands, etc.), and the view has been advanced by certain clinicians that there is always a prior cause, making this disease a secondary rather than a primary or idiopathic anemia. I am about to publish in the First Medical and Surgical Report of Bellevue Hospital (now in press) notes on 14 cases of pernicious anemia. In only two of these cases, which terminated in complete recovery, was it possible to determine the etiology. One of them was secondary to chronic endocarditis and gastritis; the other was the parasitic case above described. Nine of the 14 cases terminated fatally and in six autopsies were obtained. In five of the six autopsies a condition of advanced chronic interstitial or atrophic gastritis was observed. In these, as in many similar cases which have been reported, it was not easy to determine which was the antecedent condition, the gastritis or the anemia. Pernicious anemia occurs without permanent gastric atrophy, as in the parasitic cases, and many types of gastritis are observed without any blood changes other than those of the ordinary secondary variety. The essential matter is that at least one definite toxic cause of pernicious anemia being established, there is ground for belief that others may be discovered to explain the etiology of this obscure disease.

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SYMPTOMS AND DIAGNOSIS OF CEREBROSPINAL MENINGITIS.

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IN considering the symptoms and diagnosis of cerebrospinal meningitis as a part of the symposium in which it is my privilege to participate to-day, I shall limit myself mainly to the rehearsal of experiences with this dread disease in the central counties of New York State. Two facts are noteworthy: (1) There is not a single year when cerebrospinal fever fails to claim its victims in Central New York; (2) The disease may be either sporadic or epidemic. A search of the vital statistics and hospital reports proves the truth of the first statement. We are reminded by these statistics that individual and rare experiences are often readily forgotten. In the city of Syracuse there have been 175 deaths during the past eleven years due to cerebrospinal meningitis; 499 have died of meningitis. The deaths during this period were reported as follows:

	Cerebrospinal Meningitis.	Meningitis.
1893	11	55
1894	4	61
1895	17	61
1896	18	51
1897	12	51
1898	19	71
1899	45	43
1900	13	29
1901	9	23
1902	19	32
1903	8	22
	175	499

During these years there were no large epidemics of the disease. The majority of cases were considered sporadic, either primary or secondary. In 1899 there were a few house epidemics; the disease existed also in a limited area without attacking many. The records of St. Joseph's Hospital in the city of Syracuse show that there were 24 cases of cerebrospinal meningitis admitted from January, 1894, to October, 1904, with 16 deaths, a mortality of 66⅔ per cent. It is interesting to note that during the year when there were 45 deaths in the city of Syracuse, the larger number probably epidemic, not a single case of cerebrospinal meningitis presented for admission to St. Joseph's Hospital and that this was the only year during many when our wards were free from the disease. Through the kindness of Drs. Darlington and Guilfoy, of the Department of Health of the Borough of Manhattan, I am able to show the continuous presence of the disease within the city of New York. The number of deaths from cerebrospinal meningitis is as follows:

Year	1894	213	
"	1895	204	
"	1896	178	
"	1897	232	
"	1898	258	
"	1899	287	
"	1900	201	
"	1901	201	
"	1902	210	
"	1903	195	
"	1904	1,010	Jan. 1 to Nov. 1, 1904.
Total		3,189	

The high mortality during 1904 was due to the prevalence of the disease in epidemic form. This epidemic did not reach Central New York.

During years when epidemic cerebrospinal fever has spared the central counties, non-epidemic cases have dotted our cities and country districts indiscriminately. The disease claims the larger number of its victims from the homes of the poor; yet it is not infrequently found in homes where sanitary conditions are good. There have been but few serious epidemics of cerebrospinal meningitis in Central or Northern New York. When present, the number of cases have been surprisingly small; these showed no continuous extension, while the mor-

tality has been discouragingly high. The disease has been held within a narrow precinct of the city or a corner of the county township. So infrequent have serious and extensive epidemics been that there are among the Nestors of the profession living in Onondaga County to-day only two or three who recall more than one severe epidemic, and that in 1855 and 1856, the most fatal visitation of the disease ever experienced in Central New York, in which many were attacked. The central counties of the State were invaded. As a rule, when epidemic cerebrospinal meningitis has visited this country, the same surprises have been in store for us as have been noted by foreigners, in the remarkable limitation of its ravages, the small number originally attacked, always with a high mortality. These facts were well illustrated in the epidemic form of the disease on board the U. S. Receiving ship Minneapolis, as reported by Surgeon Stokes in the Report of the Surgeon-General, U. S. Navy, 1903. The ship was overcrowded with 1,450 men on board at the time of the outbreak, yet only 23 cases developed; of these 6 died, an unusually low mortality of 26 per cent.

Epidemic cerebrospinal meningitis is due to the meningococcus of Weichselbaum, a fact which was promptly corroborated in this country by Councilman and others. It has been demonstrated both clinically and experimentally that pneumococcus cerebrospinal meningitis and meningitis are more virulent than are those forms of the epidemic disease due to the meningococcus. Heubner says, "the benign nature of the meningococcus as compared with the virulence of other meningitis-producing germs, accounts for the comparatively few cases during epidemics, their ready control with the subjugation of the germ." Sporadic or non-epidemic cases are likely to run a much shorter and more fatal course than do those of meningococcic origin. Netter makes the statement that pneumococcus meningitis is almost uniformly fatal. Of 68 cases, 61 died during the first days of the disease. Only one-third of the meningococcus cases died. The majority of these run a protracted, often irregular and even an intermittent course. Some continue weeks and months. There are exceptions to this behavior, as was exemplified by an epidemic of the disease as it raged in a corner of the town of Cicero about thirty-three or thirty-four years ago. The cases were met in the practice of the late Dr. Blynn. There were a number of families living near each other; all children infected attended the same district school. Death claimed its victims within the first twenty-four hours of the disease. There were no sporadic cases. With but few exceptions the disease was confined to children. The few who lived long enough had the classical symptoms of epidemic cerebrospinal meningitis and those who recovered had sequelæ which relegated some to a mattress grave, some were robbed of their hearing or sight, while others recovered with less serious damage. This was before the days of bacteriolocal diagnosis, but the behavior of the epidemic and its comparison with those of to-day justify the conclusion that it was of the meningococcic variety and that occasionally this is found malignant—prompt in claiming its victims. Such a "lightning" course has been experienced since the days of lumbar puncture and has been confirmed by accurate bacteriological diagnosis, but is exceptional. The fatality of the disease, its sequelæ, with final permanent damage to vital organs and the special senses in a large number of those who live, have led the lay world and the profession to fear the infection, whether epidemic or sporadic. There are cases so mild, it is true, that they may originally escape detection; some of these are recognized only, or suspected, when the disease has attacked others more violently in the same house or neighborhood.

Another interesting fact which has been noticed in Central New York is the presence of other infectious diseases of the nervous system during the prevalence of even limited epidemics of cerebrospinal meningitis. On three occasions within the past ten years we have met cases of cerebrospinal meningitis, acute poliomyelitis anterior and Landry's paralysis almost side by side, in which the diagnosis of each was positive.

Cases of poliomyelitis anterior, occurring endemically, have, in the middle counties of the State, been present with a limited number of undoubted *Meningococcus meningitides*. This has not always been the rule. A limited epidemic of poliomyelitis anterior was found in Oneida County in the practice of Dr. Huntley, in which there were no other cases of infectious nervous disease. Those found bore no resemblance to cerebrospinal meningitis.

House epidemics of the disease in which from two to five members of a household were attacked, and these without further spread of the disease, have been met on five different occasions.

Cerebrospinal meningitis is rare after the fortieth year. In sporadic cases occurring in adults, mental strain and long-continued worry may prove inviting factors. Eichhorst reports two epidemic cases hastened, he believed, by mental fatigue. Sporadic cases offer no positive subjective symptoms which differentiate these from those of epidemic origin. Bacteriological and cultural tests only give information which insure safety and give that protection to which we are at all times entitled. One attack probably gives immunity. Councilman found but five cases in which the disease showed itself twice in the same individual.

There are unexplainable factors which modify the severity of both forms of the disease during different years and materially influence its course. With sporadic as with epidemic cases, all degrees of severity are found. In all forms of cerebrospinal meningitis, *ophistotonos* is rarely absent; so constant is this symptom that the Germans have named the disease "Genickstarre."

The *headache* of cerebrospinal meningitis is almost always severe. Its persistence and appreciation by the patient as consciousness departs and while merging into deep coma becomes impressive. We cannot easily forget the persistent groan and occasional shriek when the sensorium to all appearances seems thoroughly blunted.

General *hyperesthesia* is the rule.

Photophobia is usual. *Pressure upon nerve trunks* is usually painful, often causes the patient to shriek and may give rise to general contractures or tremor.

The *facies* of the patient and characteristic *position in bed* with rapid wasting of muscle and fat, with legs drawn in anomalous positions, are not easily simulated by other diseases of the nervous system.

The *knee-jerk* is absent in one-sixth of all cases. In one-tenth this phenomena is absent to, reappear during convalescence. In a number of cases the deep reflexes have been exaggerated. In some these have been slightly decreased. The variation in the behavior of the reflexes in different cases proves that these follow no rule.

Insomnia is almost always present.

Respiration may be increased, *bronchial catarrh* becomes a frequent complication. Sudden temporary cessation of respiration (Biots' respiration) or Cheyne-Stokes breathing may sometimes be present, though less frequent than in tuberculous meningitis.

The *pulse* and *temperature* offer nothing characteristic other than the acceleration of the former and the elevation of the latter. As death approaches, the pulse becomes exceedingly rapid, due to vagus paralysis.

Hyperpyrexia has characterized some cases. Some of these have been of the foudroyant type, ending in a few hours.

The abdomen is retracted in the majority of cases, constipation is the rule.

The *urine* continues to be secreted in good quantities, albuminuria is usual, glycosuria occasional. *Pressure along the spine and occiput* continues exquisitely painful almost to the end of the disease.

The *skin* supplies a number of lesions in *herpes, erythema, roseola* and *hemorrhage. Herpes labialis* is less common as a symptom of epidemic cerebrospinal meningitis than either roseola or hemorrhage. Herpes facialis is more frequent in Germany than in this country. Ziemssen says, "in no other disease have I observed facial herpes which spread so widely." It is present early, there are repeated crops, its presence is of no prognostic value. *Hemorrhage* which has given to the disease the name "spotted fever," a misnomer, is not always present, and in some cases seen in Central New York was absent. Large cutaneous hemorrhages and bleeding from mucous membranes are ominous, indicating malignancy. The *cerebral macule* has been early and persistent in most cases.

Convulsions are rare in adults. Children, particularly the very young, are likely to begin the disease with tonic spasm. *General epileptiform convulsions* have occasionally been present.

Tonic spasm limited, without full convulsions, is quite characteristic of the beginning posterior-basic meningitis of the English, which Lees and Barlow describe in Allbutt's System. The majority of these are undoubtedly cases of cerebrospinal meningitis. A thorough study of the 50 post-mortem reports appended to the article mentioned shows that the spinal membranes were involved in 26 of these cases; in eight the cord and membranes were found normal; in 16 of the cases the cord was not examined, or no mention is made of such examination, and in two of the 26 cases in which the spinal membranes were involved, only the upper inch or two of the cord was examined.

Vomiting has characterized the cases in which there has been an unusually long prodromal period. It is less common than in tuberculous meningitis, although it may be present at any time before the final deep coma of the average case. *Conjunctival redness* with edema and, at times, chemosis, are common. The lips and tongue are dry and cracked, while sordes accumulates on the teeth as in typhoid. *The eye and ear symptoms* will be considered separately in this symposium. As a rule, the blood shows a marked polynuclear leucocytic increase, ranging from 9,000 to 24,000. Tuberculous meningitis rarely gives evidence of marked leucocytosis. A few cases have been described in which this has been found (Osler, Ridder and Zappert).

Metastatic joint inflammation was found in three cases of which we have records. When this occurs early, its differential diagnosis from acute rheumatism and pyemia may present difficulties. In one of our cases, a woman aged twenty-four years, the early symptoms were limited to the ankle-joints. There was hyperpyrexia, severe headache, rapid development of opisthotonus which cleared all doubt. This patient died in the second week of the disease of purulent cerebrospinal meningitis with suppurative changes in all joints involved. Fronz and Osler have called attention to this complication in elaborate and valuable articles. Both observers found meningococci in the joints.

Splenic enlargement is usual, the spleen is not as large or easily palpated as in some other acute infections.

The Kernig phenomenon is present in almost all cases of cerebrospinal meningitis. If the patient is made to sit up or nearly so and an attempt is made to extend the leg, a marked contraction of the flexor tendons is felt in the popliteal space with inability to straighten the leg. Kernig in his original article makes the following statement: "This phenomenon is so striking, the difference between nothing and something, between the complete absence of the contraction while the patient is lying down and its presence

when the patient sits up, is so plainly perceptible that it is well worthy of consideration and special attention should be paid to this symptom, its presence looked for in all cases." In 15 cases of meningitis Kernig found this phenomenon present. In eight of these the diagnosis was confirmed post mortem. Of the 15 cases, 13 were epidemic cerebrospinal meningitis. This sign is not limited to meningitis, it is occasionally present with other diseases. In six of Kernig's cases, not meningitis, but with brain symptoms with pial trouble, the phenomenon was more or less marked. Kernig believes that it is an early manifestation, as early as opisthotonos, and that it is late to disappear.

In considering the importance of this phenomenon in the diagnosis of cerebrospinal meningitis, it must be conceded that but few cases have been found in which it could not be demonstrated early, and in which it did not continue until the end of the disease. However, as a differential sign in grave infections, such as pneumonia and typhoid fever, in which all symptoms may be masked during the several days because of the presence of brain symptoms, its presence and possible persistence may become misleading. Thus we have found cases of pneumonia in which the Kernig phenomenon was present with and without the associated changes in the brain. Our experience at St. Joseph's Hospital during the past few months strengthens the conclusion that the phenomenon is absent, as a rule, in cases in which the meninges are not involved but that it is not always present with meningitis. Dr. Harris kindly examined for me 121 patients at St. Joseph's Hospital, including 61 medical and 60 surgical cases. In only one of these did he find the Kernig phenomenon, that a case of tuberculous meningitis. In three cases of meningitis included in this number the Kernig phenomenon was absent. One of these followed a fracture at the base of the brain, the second proved to be purulent cerebrospinal meningitis with brain abscess, opisthotonos was marked, the third followed a fracture at the base of the brain with associated apex pneumonia. In 90 per cent. of the cases of cerebrospinal meningitis seen during the past six years we found the Kernig phenomenon present. Friss, of Copenhagen, reports 60 cases of cerebrospinal meningitis, in 53 of which he found the Kernig symptom, *i.e.*, 88 per cent. Netter's experience is of value. He reports 25 cases of meningitis including 12 of epidemic cerebrospinal meningitis in which the Kernig phenomenon was present in 23, or 92 per cent. Kernig, Henoch and Netter have called attention to the value of this symptom in clinching the diagnosis of cerebrospinal meningitis, even during the period of convalescence in cases where the disease was not originally suspected and where the diagnosis of the disease in other members of a family was aided by its persistence. Herrick's experience in 19 cases, including nine of the epidemic form of the disease, showed the presence of the Kernig phenomenon in 17 cases or 89.4 per cent. In none of these cases was it needed to make the diagnosis positive. Lewin reports 29 cases of meningitis in which the phenomenon was present in 21. Its early presence with a few brain symptoms has, on several occasions, created a strong suspicion of cerebrospinal meningitis. Such a case was seen with Dr. Joy at Cazenovia in which the Kernig symptom was present early with increasing headache without opisthotonos, stupor or vomiting. Depending upon this symptom with headaches, cerebrospinal meningitis was strongly suspected and finally developed. In two cases seen in private practice with few or no added classical symptoms early, the Kernig phenomenon has been of diagnostic value, creating a strong suspicion at least approaching cerebrospinal meningitis. We must emphasize the fact that the suspicion is only strengthened in these cases, for the Kernig phenomenon is by no means pathognomonic of cerebral or cerebrospinal meningitis, and that it is often absent in meningitis, as our experience at St. Joseph's Hospital proves. Taken alone, its value may be overestimated; when used as a link it adds great strength to the diagnostic chain.

Lumbar puncture.—The subarachnoid space is the only hollow in the body which normally contains an appreciable quantity of fluid. Thus, the brain and cord are suspended without anywhere coming in contact with their bony covering. This fact makes it possible for the clinician, in the majority of cases, to follow the maneuver of Quincke and withdraw this fluid, by means of a trocar and canula from the lumbar region for close macroscopic and microscopic examination, staining and cultural experiments.

In considering the value of lumbar puncture in the diagnosis of cerebrospinal meningitis, I would call attention to two underlying facts: (1) The normal pressure within the subarachnoid space is increased; (2) the fluid is materially changed and as a rule holds the specific microorganism responsible for the meningitis.

Thousands of punctures cautiously made have proven the possibility of determining in an overwhelming number of cases the nature of the underlying infection. The macroscopic appearances of the fluid withdrawn have led some observers, whose experiences have been large, to conclusions which ought not be accepted by the inexperienced without confirmation either by microscopical examination or cultural experiment.

Lichtheim, Frohmann, Schiff, Pfandler and Lange believe that flocculi or coagulæ which precipitate from the fluid are characteristic of tuberculous meningitis. On the other hand, Stadelman refuses to subscribe to this view. The majority of observers have formulated the rule that with purulent cerebrospinal meningitis the fluid is turbid and contains pus; that the absence of flakes from the fluid (Stadelman, Orgelmeister) does not argue against the possibility

of a tuberculous process, nor is their presence positive evidence of tuberculous meningitis. Serious errors will be made if we depend upon the macroscopic examination of the withdrawn fluid alone. Orgelmeister reports an unfortunate experience in which the diagnosis of meningitis with abscess of the brain, correctly made, was changed to tuberculous meningitis because the fluid contained fibrinous flakes with increase of leucocytes but without micro-organisms or tubercle bacilli. The post mortem proved the correctness of the original diagnosis—cerebrospinal meningitis with abscess in the left temporal lobe. Polynuclear leucocytes may be taken, when found in the lumbar fluid, as pointing strongly to the purulent form of cerebrospinal meningitis and to non-tuberculous disease. The experiences of Wentworth, Pfandler, Widal, Ravout, Monod and Sicard strengthen the diagnosis of tuberculous meningitis when there is mononuclear leucocytic increase. Lymphocytosis of the withdrawn fluid, therefore, argues against ordinary sporadic or epidemic cerebrospinal meningitis. Macroscopic and microscopical examinations of the withdrawn fluid can ultimately serve only to strengthen suspicions. The greater and scientific value in the differential diagnosis of the various forms of meningitis, cerebral and spinal, must depend upon the demonstration of the specific organism. This, lumbar puncture enables us to do in a large majority of cases, proving its utility, not only as a means of diagnosis, but for prognosis and treatment of the disease under consideration.

Prophylactic measures must of necessity follow accurate bacteriologic diagnosis in this as in other contagious infections. Failure to find, on staining, in the withdrawn fluid, tubercle bacilli or other meningitis-producing germs with positive evidences in symptoms of cerebral or cerebrospinal meningitis may occasionally postpone accurate differentiation. Cultures of meningococci and pneumococci may be grown in from twenty-four to forty-eight hours, tubercle bacilli in from ten to fourteen days.

Hansemann in his recent publication (Lehrbuch der klin. Untersuchungsmethoden (1904), Eulenberg, Kolle und Weintraub) says: "Lumbar puncture has been largely practised during recent years. There have been hundreds, yes, thousands of these. I do not believe that there are many cases in which diagnoses made, after painstaking observation, have been materially modified by this maneuver or in which the therapy of the individual case has been directed along new lines." "Considering," Hansemann says, "still further, the anatomic relations of the cerebral and spinal membranes and the complication of conditions, a positive find may be of value for diagnosis. A negative result justifies no conclusions. To depend upon lumbar puncture for a hurried differential diagnosis of a purulent meningitis may become impossible, for in such a condition there may be no or only a few leucocytes in the lumbar fluid. If we decide the diagnostic worth of lumbar puncture we must remember that with hemorrhagic pachymeningitis, blood may be absent, that at times the fluid may be bloody from puncture of a vessel, that tuberculous meningitis may give fluid (*occasionally*) free of cells and even bacilli." Hansemann further says, "In general, I believe that lumbar puncture is more a method for the Clinical Institute than for use in general practice." We do learn the nature and micro-organic cause of cerebrospinal meningitis in the majority of cases by such procedure. We acknowledge the fact that the knowledge gained by lumbar puncture is not needed in all cases of cerebrospinal meningitis. It becomes important whenever, for the protection of the masses, the true cause of the disease demands demonstrations, or whenever the positive differential diagnosis during the life of the patient depends upon the information which it alone can give. Negative results will continue disappointing. Positive finds, when needed, prove exceedingly satisfactory. Netter has gone so far as to hold, as a result of his observations, that two conditions are necessary for the positive diagnosis of epidemic cerebrospinal meningitis: (1) The Kernig sign; (2) lumbar puncture and the presence of the disease-producing organism.

If, as Councilman and Eichhorst claim, so-called sporadic cases become foci from which epidemic cerebrospinal meningitis may spread, the knowledge gained by the thorough bacteriological study of the individual case may be the means of protecting entire communities against the ravages of this disease. Lumbar puncture is not a procedure for the novice or the careless. It demands skill, cleanliness and judgment, as well as infinite patience. The clinician needs the aid of the bacteriologist in his practice. Such helpmates are being supplied in all parts of our State as promptly as they are demanded by the intelligence and scientific spirit of the profession.

With either sporadic or epidemic cerebrospinal meningitis mixed infection is not uncommon; occasionally the pneumococcus may be found with the Friedländer bacillus and the meningococcus may have abundant companionship before death or recovery.

1. *The pneumococcus as certainly causes cerebrospinal meningitis as it does malignant endocarditis, and both of these fatal infections without pulmonary inflammation.* The infection is malignant, the clinical picture is characteristic; cerebral, spinal and peripheral symptoms are abundant. Early death is the rule. These cases are less frequent than are those associated with pneumonia.

2. *Cases of cerebrospinal meningitis with pneumonia* in Central New York have been uniformly fatal. It is exceedingly difficult to diagnosticate this complication in the majority of cases. Timely and frequent lumbar punctures offer aid which may prove conclusive. Nauwerck reports 17 cases each with post mortem, and adds 12

cases from the literature of this subject—29 in all. All of his patients were over twenty years of age. He calls attention to the latency of meningitis in pneumonia, recognized post mortem only, as a rule. Netter also mentions this latency, and Osler in his splendid Cavendish Lecture on cerebrospinal meningitis says, "Of the cases I saw in Montreal I remember but one in which the diagnosis was made during life." With opisthotonus, the Kernig sign, general rigidity and advancing pneumonia the mind has remained clear in some cases. This behavior, however, was exceptional. About one-half of the cases seen by the writer have presented no spinal symptoms. In other cases wild delirium with subsultus, strabismus, opisthotonus and the Kernig symptom have been followed by coma, high fever, rapid, irregular, small pulse and death. Repeated lumbar puncture in these cases is necessary to prove the presence of meningeal infection. The respiratory and circulatory symptoms may not be materially changed. The original leucocytic count may remain unchanged or slightly increased as meningitis develops. Pneumonias are repeatedly met in which cerebrospinal involvement is strongly suspected by the presence of many of the symptoms mentioned, in which no change in brain or cord are found post mortem. Especially difficult is the diagnosis of sporadic or epidemic cerebrospinal meningitis as a complication of alcoholic pneumonia in which there may have been pre-existing or accompanying wet brain with delirium, marked rigidity and general hyperesthesia. Meningococcus pneumonia may complicate cerebrospinal meningitis. Thus, Councilman, Mallory and Wright in the presence of both these conditions found the meningococcus present in eight of ten cases. In the other two the pneumococcus was found.

3. *Pneumococcus meningitis may follow distal infection.*

During the past ten years we have had three cases at St. Joseph's Hospital in which cerebrospinal meningitis of pneumococcus origin have followed. The first was after removal of the upper teeth, the second after otitis media, the third after a transverse fracture at the base of the brain. We have notes of two fatal cases of cerebrospinal meningitis which followed nasal operations, once after the removal of a nasal polyp, the second after removal of bony masses. Pneumococci were found in the nasal secretion. This was before the days of lumbar puncture. Besides the pneumococcus, *Streptococcus pyogenes, Staphylococcus pyogenes* and the influenza bacillus have been found with the meningococcus in the lumbar fluid and pus. Heubner reports 14 cases of tuberculous meningitis, in two of which he found with meningococci, tubercle bacilli. Fübringer reports a case of cerebrospinal meningitis dependent upon gonococcic infection. Pfuhl and Walter have called attention to the association of the Pfeiffer influenza bacillus with other meningitis producing germs, while Peucker, Donath and Wasserman call attention to cerebrospinal meningitis dependent upon the influenza bacillus alone. Wasserman's case was conclusive in proving the presence of the bacillus in the lumbar fluid. Saquepee and Peltier strengthened by their clinical and bacteriologic studies described a grippal form of cerebrospinal meningitis.

Symptoms due to complications are dependent upon extension of the primary or mixed infections or upon consecutive structural changes. These cannot be fully considered at this time. So numerous are these, and so far reaching their results, that chapters have been written in their consideration.

The consideration of the *differential diagnosis of conditions resembling cerebrospinal meningitis* is manifestly impossible within the time limit of this paper. Few errors will be made by the cautious who are willing to associate painstaking bedside examination with the knowledge gained from laboratory methods. These errors will be limited, if past experiences are repeated, to tuberculous meningitis, cerebral typhoid, the pneumonias, intestinal infections, rheumatism with cerebral symptoms and smallpox. The long prodromal period of tuberculous meningitis, the absence of leucocytosis in the majority of cases, the paralyses in the domain of the third, fourth and seventh nerves with other basilar symptoms, the absence of other cases and the knowledge gained by lumbar puncture will brand the case as one of tuberculous meningitis. The greater rigidity and opisthotonos will always be found associated with cerebrospinal meningitis. The differentiation of malignant scarlatina in foudroyant cases will continue speculative. The differentiation of smallpox will not puzzle long. Osler reports once such failure. The presence in variola of mononuclear lymphocytosis with the assistance gained from lumbar puncture, the Kernig sign and the characteristic umbilication of the vesicle will suffice in most cases.

An interesting experience which I have recently had with Dr. Randall, of Liverpool, brings to my mind a series of typhoid cases in which the symptoms during the first four to seven days are those of cerebral or cerebrospinal fever. The case to which I refer was that of a young man over twenty years who, during the first week of typhoid, had with delirium, opisthotonos, the Kernig symptom, rigid muscles and violent headache, cutaneous and general hyperesthesia with cerebral macule, no diarrhea but retracted abdomen, temperature 103° F., pulse 120, respirations 24. On the sixth or seventh day the Widal agglutination was positive. With that day ended the symptoms of cerebrospinal involvement. Another similar case, that of a child, aged only seven months, was seen with the late Dr. Winslow, of Ithaca, four years ago. During the first week of the disease the diagnosis of cerebrospinal meningitis seemed justified because of the usual symptoms of that disease. By the seventh day the

spleen became palpable and enlarged. Abundant roseola with a crop of sudaminæ covered the abdomen. The position of the child in bed was that of cerebrospinal meningitis. The Widal agglutination was positive on the tenth day. After this all evidences of cerebrospinal meningitis faded, the babe merged into the usual typhoid condition which was followed by a slow convalescence without sequel. The child was infected from the mother's breast. The latter had a mild ambulatory typhoid, unrecognized until a positive Widal reaction was found during the child's illness.

Cases of typhoid fever in which the first week simulates cerebrospinal meningitis are extremely difficult of recognition. Others have called attention to these anomalous forms of typhoid. Thus Curschmann, in 1886, reported five similar cases from which he concluded, "that it is surprising to find a condition scarcely mentioned in medical literature in which with a final characteristic course of abdominal typhoid the disease begins with all of the symptoms of a true cerebrospinal irritation which disappears after the first week of the disease." A search of medical literature shows that Fritz, a French physician, called attention to these cases in 1864 and proved that none of them showed change in the brain or cord on post-mortem examination. Stäubli reports three cases and makes a plea for the classification of these as meningismus typhosus or typhoid without lesions of spinal or cerebral meningitis but with all of these symptoms during the early days. Typhoid toxins must be charged with producing this mimicry of true meningitis. The longer period of prodromal symptoms, the greater enlargement of the spleen, the greater likelihood of intestinal manifestations, the absence of leucocytosis, the sterile lumbar fluid, the Widal agglutination, all strengthen the suspicion of typhoid.

That there are occasional cases of cerebrospinal meningitis dependent upon typhoid infection cannot be safely denied. My own experience offers no pathologic data to prove the truth of this statement. König reports two cases with normal pressure, demonstrated by lumbar puncture, one recovery and one death. In the first he diagnosticated edema and profound congestion; in the second the post mortem confirmed the association of the two diseases. Both pathologists and clinicians are disagreed on the ability of the typhoid bacillus to produce suppurative changes. Moring's conclusions during the Crimean War, in 200 typhoid autopsies with microscopic sections, in which there had been profound cerebrospinal symptoms, never showed the presence of suppurative changes in exudation or pus corpuscles. Holscher in 2,000 typhoid autopsies found 11 cases, *i.e.*, five per cent. with suppurative meningitis. Murchison denied the possibility of pus formation associated with acute typhoid inflammation, referring probably to extra-intestinal lesions. I might cite a large number of authorities (quoted by Stäubli) proving beyond peradventure the occasional association of cerebrospinal meningitis with typhoid in which the typhoid bacillus was the only pathogenic organism present, found in the lumbar fluid and post mortem. The last of these comes from the Munich clinic and is reported by Stäubli. His methods included all possible ante-mortem and post-mortem refinements of diagnosis and demonstrate the fact that the typhoid bacillus may cause purulent cerebrospinal meningitis. The splendid illustration of the article adds to its value and makes it convincing. There is no time during an active typhoid in which symptoms of deep involvement of the cerebrospinal system may not develop. To determine whether these have a foundation in pathologic change in the cerebral or spinal membranes will often prove exceedingly puzzling.

EYE SYMPTOMS OF CEREBROSPINAL MENINGITIS.*

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THE eye symptoms of cerebrospinal meningitis may, for the convenience of consideration, be divided into two groups—motor and visual. Besides these two main groups, there is frequently present a conjunctivitis, which at times is attended with marked swelling and edema of the lids.

As is well known, the eye symptoms in cerebrospinal meningitis vary in different epidemics. For instance, one epidemic may be marked simply by a conjunctivitis of a more or less severe character;[1] in another the chief eye symptoms may be a plastic or suppurative choroiditis;[2] in another the cornea may be the seat of affection;[3] while in another the optic nerve and retina may be the chief points of trouble.[4] Nystagmus is frequent in some epidemics.[5]

In my experience as attending ophthalmic surgeon to the Babies' Wards at the Post-Graduate Hospital I have examined the eyes in from ten to fifteen cases of sporadic cerebrospinal meningitis every year, and I may say that the eye symptoms vary as widely in these cases as in the different epidemics. In some there were no eye symptoms whatever, in others only a mild conjunctivitis, while in others neuroretinitis, iridochoroiditis, keratitis, or various disturbances of motility, singly or in combination, have been present. Last year—1904—late into the winter and extending into the spring months, we had an epidemic of cerebrospinal meningitis in New York City, and I had the opportunity of examining some thirty odd cases during the year. Thirty-one cases in all were examined by me, some once and some many times.

Since all epidemics of cerebrospinal meningitis have one or more eye symptoms in common, I shall first consider any and all of the eye symptoms that may occur in epidemic meningitis, and

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then give a detailed account of the eye symptoms observed by me in the epidemics of 1904 in New York City.

MOTOR SYMPTOMS.

These may be paralysis of the third nerve, sixth nerve, fourth nerve, ophthalmic division of the fifth nerve, seventh nerve, in all of which the paralysis may be partial or complete from pressure on the nerve trunks. We also have conjugate deviations, nystagmus and ptosis, from cortex lesions.

Paralysis of the Sixth and Third Nerve.—Paralysis of the sixth nerve is one of the most common of the motor lesions occurring in epidemic meningitis. In an epidemic of twenty-nine cases observed by Leichtenstern, the external rectus was affected oftener than the other eye muscles. And such was the case in the patients observed by me in the epidemic of 1904 in New York City. Randolph, on the other hand, in an epidemic of forty cases, reported third nerve paralysis in eight cases, every strabismus being of the divergent variety.

Pupillary symptoms, as dilatation, contraction, and inequality, are common, and are due to affections of the third nerve, the sympathetic nerve; or indirectly to inflammation of the iris and choroid, the retina and optic nerve and optic tracts. In the early stages of the disease we are liable to have contraction or inequality of the pupils, at times accompanied with a squint. In the later stages of the disease we often have dilatation and sluggishness of the pupils. Where iridochoroiditis is a complication the pupil is contracted and irregular, and the iris may be ballooned forward, the pupillary margin coming almost in contact with the posterior surface of the cornea, as in a case I now have under observation.

Seventh Nerve Paralysis.—From pressure on the seventh nerve we may have the condition of lagophthalmos, that is, the eyes remain half open, the patient being unable to close the eyelids. The cornea thus left exposed may, and often does, become ulcerated. In such cases the cornea should be protected by frequent applications of vaseline and the application of a protective bandage.

Paralysis of the Fifth Nerve, Ophthalmic Division.—From pressure on the fifth nerve anesthesia of the cornea and a neuroparalytic keratitis may develop. On the other hand, from irritation of the fifth nerve, we may have paresthesia, or even a hyperesthesia of the eyeball and lids, and a headache confined to the temple on the side affected.

Fourth Nerve Paralysis.—This is a very infrequent symptom, but has been noted in a few cases.

Ptosis.—Ptosis, unilateral or bilateral, is observed now and then in these cases. Unilateral ptosis, as the only focal symptom, occurs in cortical lesions alone. Not infrequently ptosis, single or double, occurs temporarily as a secondary symptom.

Conjugate Deviations.—Conjugate deviations of the eyes are sometimes met with in epidemic meningitis, but it is usually a secondary symptom, and is of short duration. It may be due to lesion in the cortex or in the pons. If the former, the deviation is toward the side with the lesion in paralysis, and from it in spasms; just the reverse of this happens when the deviation is due to a lesion in the pons.

Nystagmus.—Nystagmus is a frequent symptom in some epidemics, as in the one observed by Leichtenstern, while in others it is a rare occurrence or not present at all.

VISUAL SYMPTOMS.

Optic Neuritis.—Inflammation of the optic nerve occurs comparatively frequently in some epidemics and very rarely in others. Randolph found it in six cases of forty examined by him, and "great venous engorgement and tortuosity, with more or less congestion of the optic disk," in nineteen others, besides one case of hemorrhagic retinitis and thrombus of the central vein of the retina. Optic neuritis usually occurs late in the disease, but has been observed as early as the sixth day. When it does occur, and early in the disease, it is of vast importance in establishing the diagnosis.

Neurorctinitis and Perineuritis.—The retina as well as the optic nerve may become involved, the condition being termed neuroretinitis; or, if the retina is the chief seat of trouble, as in cases described by Galezowski, it may be more correctly designated as perineuritis. So marked swelling of the optic nerve as to give rise to *choked disk* is rarely seen in this disease. It is more commonly met with in tuberculous meningitis, and most often in brain abscess and tumors of the brain.

Optic neuritis in meningitis may be caused indirectly by pressure from exudation and cell infiltration on the outside of the nerve. However, the nerve and its sheath may be directly implicated by continuity of tissue. The optic disk has a more or less characteristic appearance in these cases, which is a certain "smoky" or "misty" appearance. In addition to this smoky condition the edges of the disk are indistinct or obscured altogether, there is more or less redness, and, at times, hemorrhagic spots on the disk. Many times there is only a decided congestion of the disk, while the retinal veins are large, tortuous and full of dark blood. The condition described and designated by Galezowski as perineuritis is characterized by a slight swelling at the periphery of the optic disk, a sinking in at its center and a moderate amount of redness, the retina presenting a striated appearance, or at times an edematous look. I have seen two such cases myself, and consider the condition to be simply a neuroretinitis.

Optic Atrophy.—This may be secondary, the result of optic neuritis; or it may be of a primary nature and descending. Primary atrophy of the optic nerve in cerebrospinal meningitis is uncommon, but I have one such case under ob-

servation at present. Dr. C. S. Bull reported such a case at the New York Ophthalmological Society this winter.

A marked peculiarity in optic atrophy following meningitis is that vision is restored in some of these cases although a white atrophy remains. Williams[7] and Randolph[4] have each reported a case where the patient was entirely blind, but subsequently recovered vision completely; in Williams' case the patient was deaf as well as blind, but the hearing was restored also. In neither of these cases it is distinctly stated that an optic atrophy is present, but we are led to infer this from the report of the cases. Dr. H. Knapp reported such a case at the Section of Ophthalmology, Academy of Medicine, December 10, 1904. In this patient, a young adult, there was complete white atrophy in each eye following meningitis, but, strange to say, vision was perfect in one eye and absolutely destroyed in the other. Knapp said he could not explain why vision should be present in either eye, and told the patient, in looking into his eyes with the ophthalmoscope, according to all rules, he ought to be blind.

Plastic and Suppurative Choroiditis.—Suppurative choroiditis with iritis and occlusion of the pupil, accompanied in some cases with pus in the anterior chamber, is the chief eye symptom in some epidemics. Plastic choroiditis usually appears in the second or third week of the disease, and, as a rule, causes total destruction of sight. The fundus of the eye, from the exudate in the vitreous, gives a grayish or yellowish reflex simulating the appearance of glioma retinæ. J. H. Knapp[2] and Joseph Jacoby,[6] among others, have noted this particular complication. In an epidemic at Rastadt, near Heidelberg, J. H. Knapp saw ten such cases. In most of these cases there was but slight irritation of the eye, there being only a mild subconjunctival injection present, with some discoloration of the iris and synechiæ. The patients frequently complained of slight pain in the head and eyes. In a few of the cases there were marked inflammatory symptoms,—swelling of the eyelids, intense redness of the eyeball and pus in the anterior chamber. The disease, as a rule, manifested itself in the second or third week of the meningitis and lasted from one week to a month or more, and left the eye soft and without sight.

Panophthalmitis.—This formidable condition, fortunately, rarely occurs as a complication of epidemic meningitis. The sight is always lost in the affected eye.

Photophobia.—This is an early and almost constant symptom of epidemic meningitis.

Conjunctivitis.—Conjunctivitis is a very common symptom of cerebrospinal meningitis, and in some epidemics is the only eye symptom noted. It usually appears early in the disease, as a rule is of a mild type, but may be very severe, with redness and swelling of the lids.

The edema of the conjunctiva in these cases is due to the extension of the inflammation into the orbit along the veins which impedes the return flow of blood.

Keratitis.—Keratitis of the parenchymatous type is a very serious complication in this disease. Niemyer and Wilson have observed such cases; and the latter reports five cases with blindness as a result in every case. Apparently, in epidemics where the conjunctiva is severely inflamed the cornea is more likely to be involved, either in an ulcerative process or with the deeper perinchymatous inflammation. With involvement of the fifth nerve we may get a neuroparalytic inflammation of the cornea—that is, of a trophic nature. When the seventh nerve is involved we are liable to have ulcerated keratitis as the result of the exposure of the cornea, as the patient is unable to close eyelids.

A few or many of the above eye symptoms may be present in epidemic meningitis; at times, however, no eye symptoms at all are to be observed. In the epidemic of cerebrospinal meningitis in New York City in 1904, in those cases observed by me, the most prominent symptom was that of *neuroretinitis,* which occurred in eight cases. In seven of these cases both eyes were affected, in the other case the right eye only. In one the neuroretinitis was complicated with markedly contracted pupils, in one with convergent squint and seventh nerve paralysis, and in one with conjunctivitis and keratitis. Four of these patients died, two were cured and two discharged before the end of the disease because of some complicating contagious disease, as measles, the patients being sent to some contagious hospital.

Conjunctivitis was present in eight cases. In every instance a smear was taken and a microscopical examination made. The Koch-Weeks' bacillus was found in two, staphylococcus in one, diplococcus in one, both staphylococcus and diplococcus in one, pneumococcus in one, gonococcus in one, and in one the examination proved negative as regards the eye, although the lumbar puncture proved positive as to the diplococcus of meningitis. One case was complicated with convergent squint, one with dilated pupils and one with keratitis and neurotinitis. Four patients died, two were cured, and two discharged before the close of the disease. In none of the cases except in the one with the gonococcus infection, was the conjunctivitis of a severe nature.

Pupillary Changes.—In three cases the pupils were affected; in one the pupils were very small with a mild neuroretinitis complicating; in one the pupils were dilated, a conjunctivitis complicating; in one the pupils were unequal; in this case no fundus examination was made, the parents taking the child away. In both cases which remained death resulted.

Venous Congestion of the Fundus.—In two cases there was marked dilatation and tortuosity of the retinal veins, while the optic disks were greatly congested, but without swelling. There were no other eye symptoms; one patient died and one recovered.

Paralysis of the Ocular Muscles.—Two patients had convergent strabismus, one of which was complicated with conjunctivitis and the other with seventh nerve paralysis and neuroretinitis; both patients recovered with good vision.

Keratitis.—This was present in one case, complicated with conjunctivitis and neuroretinitis; the patient died.

Iridochoroiditis, Primary Optic Atrophy.—This very interesting case is still under observation and warrants a brief description: M. R., aged two and one-half years, gave the following history: December 26, 1904, two weeks ago, complained of being tired, developed a fever and was very drowsy for a week; complained of pain in the head, and had cried a great deal in the last week. December 27, first examination; right pupil contracted and irresponsive to light or convergence; no redness of the eye or lids, while there is a grayish-white reflex from the fundus by oblique illumination. Left eye normal. Ordered atropine instilled in the right eye several times. December 28, right pupil has not responded to the atropine, the iris is bound down to the anterior capsule of the lens. Tension, —2. January 4, 1905, right eye, pupillary margin of the iris is bulged forward, half-way filling the anterior chamber. Tension, —3; slight subconjunctival injection; still a grayish-white reflex from the fundus. Left eye normal. January 11, 1905, right eye—the pupillary margin of the iris is almost in contact with the posterior surface of the cornea. The eye is very soft, but there is only slight congstion. The optic disk in the left eye is pale, the pupil slightly dilated and sluggish. January 25, 1905, right eye is in about the same condition as last noted; in the left eye there is decided paleness of the disk, pupil dilated and sluggish. The child is improving as to general symptoms. Pulse and temperature both markedly improved.

The Significance of Eye Symptoms in Epidemic Cerebrospinal Meningitis as Regards Diagnosis and Prognosis.—The diagnosis in epidemic meningitis, as a rule, may be made from the general symptoms, *e.g.*, vomiting, irregular temperature, headache, retracted head, spinal irritation, petechial or herpetic eruptions, which, taken together with lumbar puncture and Kernig's symptoms, make the diagnosis positive. But in a few cases the general symptoms are not well marked, when the eye symptoms, especially where there are changes in the fundus, may serve to clear up the diagnosis. Inequality of the pupils, particularly if accompanied with squint, should place the general practitioner on his guard. I am not unmindful of the difficulty and, at times, the impossibility of making a satisfactory examination of the fundus of the eye in children; but as many of the symptoms in meningitis are motor in character, that is, paralysis of the different eye muscles, pupillary changes, ptosis, etc., all of which may be observed without the use of the ophthalmoscope, ignorance of the use of which instrument most practitioners give as an excuse for not making proper examination of the eyes, it is the more to be regretted that the eyes do not receive earlier and more careful attention. I may state here that since the introduction of the electric ophthalmoscope in the last few years the examination of the fundus of the eye can be made easily while the child lies in bed, and even by one not experienced in the use of the ophthalmoscope. The light in these instruments always moves with the instrument, and it is an easy matter to keep the fundus of the eye illuminated, especially where the pupil is dilated either with atropine or from the effects of the disease.

Prognosis in these cases where there are eye lesions, especially where the fundus is affected, is always more grave than in those cases where there are no eye symptoms. In the epidemic observed by Randolph,[4] in the six cases where optic neuritis was a complication five died, while in the other case the patient was alive when last heard from. In other words, in the five cases followed to a conclusion every one died, or 100 per cent. In the cases were there were no fundus lesions 57 per cent. died. In the epidemic observed by myself, of the eight cases affected with neuroretinitis, four died, two were cured, and two discharged (not followed to a conclusion), making the percentage of deaths equal to 66⅔ per cent., while in the ten cases where there were no eye symptoms there were but 50 per cent. of deaths. Such statistics speak for themselves and need no comment.

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MEDICAL PROGRESS.

SURGERY.

On Peritoneal Adhesions.—Carl Beck (*Am. Med.*, April 1, 1905) says the study of the adhesions forming after repeated attacks of appendicitis has also given us clearer insight into adhesion formations in general, revealing many obscure ailments in their true light. Adhesions are found more frequently in the ileocecal region than anywhere else. As a rule there is a broad parietal adhesion especially if there is postoperative hernia. The peristalsis of the free part of the gut elongates it until it becomes a tense, unyielding band; and if an intestinal loop becomes ensnared below it, its circulation will be under pressure, and will give rise to more or less disturbance, sometimes even to complete strangulation, especially if there is procrastination. After early operation postoperative adhesions are rarely found; another point in favor of prompt early surgical interference in appendicitis. Beck's experience in cases of chronic progressive adhesion-forming peritonitis, as observed idiopathically as well as after appendicitis, is absolutely bad. The nature of this peculiar condi-

tion, characterized by a multitude of cobweb-shaped bands, is not yet sufficiently elucidated.

Epiphyseal Separation.—In summarizing separation of the epiphyses KIRMISSON (*La Méd. Mod.*, March 8, 1905) states that in general fractures and luxations are less grave in children than in adults, but fractures of the elbow are very important in the young. Fractures of the forearm in children are usually greenstick, because the bones are more elastic and the periosteum thicker than in adults. Here the characteristic deformity is a posterior convexity of the forearm with no abnormal mobility or crepitus, while fractures of the clavicle are shown only by ecchymosis and pain on pressure. Instead of fracture of the fibrils and tibia, which are so frequent in adults, we meet with fracture of the femoral diaphysis in children, which heal easily under extension without shortening. Fracture of the neck of the femur in children is not so uncommon as was formerly supposed. Dislocation of the hip is occasionally seen in children, but more often dislocation of the elbow. On speaking of epiphyseal separations it must be remembered that between ten and thirteen years the diaphysis and epiphysis are two bony parts separated by the epiphyseal cartilage. These separations, which between seven and fourteen years are not the result of a direct force or of traction, but are caused by twisting and are accompanied by a large tear of the periosteum. The break in continuity, as shown by the X-ray, usually comes between the diaphysis and epiphyseal cartilage with sometimes a slight fracture of the diaphysis. These epiphyseal saparations are particularly difficult from the point of view of diagnosis and treatment, as they are so near the joints. At the upper extremity of the humerus one must be careful to distinguish dislocation of the shoulder, and the upper fragment is so small that it is very hard to reduce. Besides the periosteum may be so torn that reduction is impossible without incision. Laceration of vessels and nerves is most frequent in separations at the lower end of the femur when amputation may be necessary. There are two ways of reducing the dislocation: (1) To use traction and reduce in extension; (2) pass the left arm under the thigh and draw the leg down with the right hand flexing at the same time. The second is usually the more successful. If the periosteum has been button-holed by the epiphysis an incision may allow reduction, otherwise resection must be done, which necessarily entails a subsequent shortening of the leg.

Gunshot Wounds in the Present War.—In view of the present Russo-Japanese conflict H. K. CHOLIN's article in *Roussky Vrach*, February 18, 1905, presents some some special interesting features. The Japanese use a rifle of their own invention, and a bullet of a larger size than the Russians. In rapidity of its flight it also excels the enemy's bullet. The penetrating wound caused by it heals very well; it is, however, when the bullet impinges upon and into the tissues that it produces a terribly devastating effect; there is a general tearing and bruising of tissues accompanied usually by a profuse and often alarming hemorrhage. The directness and the rapidity of the bullet's flight are such that no tissues can withstand the impaction, or in any way deviate its course. The wound is usually so cleanly incised that no pieces of clothing are ever carried in—an element of great importance in the favorable healing of such wounds. The bone is rarely splintered, except in cases where shrapnel is used. The blood vessels are very often wounded and the author observed several cases of aneurism of the popliteal as well as of other arteries. Many of the nerve trunks are attacked. The wounds usually healed kindly and without reaction, but meddlesome examinations were sure to react on the course of healing unfavorably. Pus appeared only in those cases where the tissues around the path of the bullet were invaded. Another complication was the frequently large cicatrices and tough adhesions. Out of 230 gunshot wounds 13 were cranial, 11 through the substance of the brain. The deep penetrating lesions in this region were not accompanied by any destruction of the bones of the skull; this was observed only in the superficial wounds. Six of the cases were accompanied by paralysis of the arm and leg, one presented the symptoms of cortical epilepsy due evidently to pressure and removed by operation. The general results of wounds of the lungs were rather favorable; all of them, with one exception, being penetrating. There was hemoptysis in 21, subcutaneous emphysema in three, extensive hematothorax in one, etc. The 27 cases of abdominal trauma were all penetrating wounds; of these only one died of what the author thinks was neglect of treatment; but one case of peritonisis, and that was favorable. There were several penetrating wounds of the liver, spleen and kidneys. The injuries to the joints were usually severe and rebellious to treatment, but there was but one that required operative inferference. From the foregoing, the author draws the following conclusions: (1) The Japanese bullet meets all the requirements of humanitarian warfare, and the wounds inflicted by it heal rapidly and without reaction. (2) The majority of wounds especially those in the region of the skull, abdomen and spinal column require prolonged treatment on the battlefield. It thus becomes imperative to organize hospitals in the immediate proximity of the field of action, so as to obviate the necessity of transportation that is usually attended by terrible suffering. (3) The possibility of late complications demands prolonged sojourn of the wounded at the hospital. (4) The present conditions of transportation are absolutely inadequate and demand immediate attention.

Fracture of the Patella.—In a very extensive article in which the foremost authorities are quoted, W. C. JONES (*Chic. Med. Rec.*, March 15, 1905) summarizes the main points in the anatomy, etiology, pathology, diagnosis and treatment, as follows: In regard to the anatomy of the knee, the following are pertinent facts: (*a*) The oblique direction downward and inward of the superior border of the patella; (*b*) the position of the patella in relation to the femur, the center of the former resting on the edge of the condyles of the femur when the leg is in the position of semiflexion; (*c*) the insertion of the quadriceps tendon on the anterior portion of the patella; (*d*) the inseparable connection of the patella anteriorly with the patellar aponeurosis, posteriorly with the synovial membrane of the knee-joint, and laterally with the lateral and capsular ligaments of the joints. There is practical unanimity of opinion in regard to all forms of fracture of the patella, except recent simple transverse. The following features of this type deserve mention in this connection: (1) As to the etiology, this fracture is caused by contraction of the quadriceps extensor muscle, which breaks the bone over the lower edge of the femur. A fall upon the knee may be a simultaneous con-

tributing factor. (2) In the pathology, the following lesions are particularly significant: (*a*) The laceration of the fibro-aponeurotic tissues about the joint; (*b*) the anterior V-displacement of the fragments or the possible rotation of one of them; (*c*) the interposition of blood and, in most cases, of aponeurotic structures between the fractured ends. (3) The diagnosis of this fracture includes not only the mere discovery of the presence of a fracture, but also the determining of the position of the fragments and the extent of the injuries to the soft parts. (4) In regard to the treatment, the tendency is decidedly in favor of operative rather than non-operative measures; and the open methods usually are preferred to the subcutaneous ones. The indications for operation are, wide separation of the fragments, interposition of soft tissues between the fractured ends, marked swelling of the joint, and the fact that the patient follows an arduous occupation. The operation must be undertaken only by experienced men and only under conditions where the asepsis can be completely controlled. The patient must be in good health and of suitable age. It is preferable to avoid, if possible, suture of the bone, uniting only the aponeurotic structures. If, however, the bone is sutured, use absorbable material. Begin massage during the first week and passive motion at the end of the second week.

Penetrating Wounds of the Abdomen.—Of the two cases reported by Glickman (*Prakt. Vrach*, February 11, 1905), one was a man of twenty-six years of age, in whom there was a protrusion of the intestines through the wound; there was a wound in the protruded intestine 4 cm. long. The organs were replaced and the abdominal wall closed with sutures; the postoperative course uneventful, the patient leaving the hospital cured two weeks after the occurrence of the accident. In the other case there was a protrusion of the pancreas. This was first resected, then rendered thoroughly aseptic and replaced. As in the first case the postoperative course uneventful. The author inclines to the view that in cases of protrusion of the pancreas the protruded portion should always be resected, especially if there be even the remotest possibility of infection; and in the pancreas this may always be expected. In a general way the author thinks that only in the very recent cases where absolute asepsis can be guaranteed may the protruded organs be replaced in its entirety. In Closing small abdominal wounds the author does not include the parietal wall of the peritoneum; it is only in wounds of great extent that such inclusion becomes necessary. In treating penetrating wounds of the abdomen it is more advisable not to close them tightly, but to leave a corner for the introduction of iodoform or sterilized gauze. The prognosis of such wounds is more favorable at the present time than it used to be formerly, the more so with cases that are taken in hand early enough.

MEDICINE.

Acute Meningitis.—W. T. Councilman (*Jour. A. M. A.*, April 1, 1905) describes the conditions of acute meningitis with more special reference to that form produced by the *Diplococcus intracellularis meningitidis*, which he believes is constantly occurring in a sporadic form, aside from the not infrequent epidemic aggravations. The infecting organism, he states, is one of low vitality and incapable of a purely saprophytic existence. The statistics fail to give any adequate idea of the frequency of the infection in ordinary years. His experience, however, leads him to believe that with rare exceptions all cases of primary meningitis are due to this micro-organism and that it would be impossible without sporadic infections to bridge over the intervals between the epidemics. It is possible, too, that the germ may even inhabit the normal mucous membranes, of the nose, for example, as has been shown in a few cases, where it it produces a rhinitis, and infection of the meninges may take place through the lymphatics or by continuity of surface. We can only explain the epidemics of the disease, he says, either by an increase of virulence of the diplococcus or by a decrease in the resistance of the tissues. The underlying causes of epidemics are unknown, and even atmospheric conditions cannot be excluded. He discusses to some extent the relations of meningitis to pneumonia, as shown by the Massachusetts health statistics, and illustrates with a chart. Primary meningitis from the pneumococcus or staphylococcus is rare; secondary types are not so frequent. The paper concludes with a description of the pathologic conditions in acute meningeal disease.

The Panama Canal Mismanagement.—In the *Jour. A. M. A.*, April 1, 1905, the Isthmian Canal Commission replies at length to the charges made against it by Dr. C. A. L. Reed, in the *Journal A. M. A.*, March 11. The commission states that neither from official conferences nor from interviews with members of the sanitary staff has it been learned that the plan of sanitation is defective in scope or in elasticity, or that any troubles have occurred, except such as inevitably attend the organization of such enterprises. Dr. Reed was asked for a reply to go in the same issue of the *Journal*, but he reserves his reply for the ear of the Secretary of War, because he has been criticized for allowing publication of his first report without waiting for government approval of its publication. The *Journal*, however, expresses the conviction that Dr. Reed has made out a case. In some details he may have been misinformed, but even the reply of the commission itself proves, by the admissions made therein, that the sanitary department was very unwisely subordinated to, and hindered by, various officials and red tape methods. This was the main contention, and against this the *Journal A. M. A.* and many other medical journals protested before the commission was formed.

Typhoid Perforation.—Morris Manges, New York City (*Jour. A. M. A.*, March —), reports nineteen cases of perforation in typhoid, with sixteen operations and five recoveries. He discusses the subject generally, but emphasizes particularly the diagnostic significance of pain, which under certain conditions in this disease may accompany non-perforative peritonitis. He considers that the most important facts in the diagnosis are the marked change in the patient's condition with the abdominal pain, which is very variable, and that the other abdominal conditions, distension, rigidity, tenderness, liver dulness, etc., with the anxious facies and sweating, are valuable aids in the diagnosis. Changes in the rate and character of the pulse are of more value than temperature or respiration. Manges believes in the occasional spontaneous cure of this condition, and refers to one case in his series in which this apparently occurred, and to another, in which, at the autopsy, a small perforation was found well sealed by omentum. The rule to operate, however, is not vitiated by these rare occurrences, and operation itself does not add to the dangers and may be effective in preventing a perforation where one is not found.

Rapid Bacteriological Diagnosis of Diphtheria.—H. A. Higley (*Med. Rec.*, April 1, 1905) says that by the following method it is possible to make a rapid

(fifteen-minute) and sure diagnosis by the examination of stained smears made directly from deposits or false membranes in cases which present themselves for differential diagnosis of diphtheria. The material from which the smear is made is obtained by passing lightly over the false membrane a sort of curette formed from a wire-looped needle flattened by filing at its curved extremity. The following staining fluids, which should be freshly prepared, are used: No. 1. Five drops of Kühnes carbolic methylene blue in seven cubic centimeters of tap water. No. 2. Ten drops of carbolfuchsin in seven cubic centimeters of tap water. Method of Application.—(1) Fix smear by passing three times through the flame; (2) apply tain No. 1 for five seconds; (3) wash with tap water and dry with filter paper; (4) apply stain No. 2 for one minute; (5) wash, dry and mount in balsam. When thus stained, the diphtheria bacilli appear as dark red or violet rods, irregularly stained, often containing polar dots. The unevenness of their contour and mode of division are regularly and distinctly brought out, and these characteristics afford the essential differential points, for other micro-organisms take varying tints, and may appear of the same color as the diphtheria bacilli, so that upon color alone no differentiation is possible.

Relation of the Nervous System to Visceral and Trophic Pneuomena.—J. Fraenkel's address (*Med. Rec.*, April 1, 1905) is devoted to a consideration of the relation of the nervous system to the pathology of the vegetative functions. So-called visceral or vegetative phenomena accompany more or less prominently organic disease of the nervous system, and constitute the chief physiognomy of all functional states and functional symptom-complexes. Trophic, vasomotor and secretory disturbances of the skin, changes in the trophism of joints and viscera, disturbances of the physiologic rhythm of vaso- and viscero-motor innervation, perversions of visceral sensation, are often seen at the bedside, and not sufficiently appreciated. The author takes up in turn the various manifestations of such changes occurring in the various organs and functions of the body, and points out their relations to the underlying disease. Thorough study of these subjects promises us, he says, (1) greater exactness of localization of organic disease of the nervous system and better interpretation of early symptoms; (2) more rational conception of functional conditions; (3) clearer, therapeutic indications.

Perineum, Perineorrhaphy and Prolapse.—A. Sturmdorf (*Med. Rec.*, April 1, 1905) says that the keynote in the clinical significance and therapeutic indication of pelvic floor laceration is prolapse, while perineorrhaphy, immediate, intermediate and late, represents respectively the prophylaxis and cure of such prolapse. The normal position of the uterus is maintained by deflection of the force of intra-abdominal pressure, which acts on the uterus, poised as a lever with unequal arms on a fulcrum formed by the intravaginal perineal crest. Restoration of the conditions resulting in injury to the perineum can best be repaired by immediate suture, and to facilitate accurate readjustment of original anatomic relations, the preliminary introduction of what may be termed guide sutures, will be found helpful, time-saving, and, to some extent, prophylactic. At some convenient moment, prior to the descent of the fetal presenting part, two to three silkworm sutures are introduced under proper precautions into the structures between vagina and rectum, from the cutaneous base of the perineum to its apex, which serve as efficient landmarks when the severed muscular and fascial layers are to be reunited after delivery. Late operations involve as their surgical objective point the remnants of the anterior loop of the levator ani muscle. Under all conditions of perineal rupture, the pubic attachments of this levator loop present permanent palpable ridges. With these ridges serving as guides to the muscle, the posterolateral mococutaneous junction of the vagina is severed and the deep seat of lesion exposed by carefully raising the cicatrized vaginal coverings. Utilizable remnants of the levator muscle can thus be readily located, and after isolation and trimming, should be coaptated by buried end-to-end sutures.

Treatment of Cerebrospinal Fever.—Charles G. Stockton (*Am. Med.*, April 1, 1905) emphasizes the importance of bringing about the best hygienic condition for the patient. This is accomplished by the absolute quiet in well-ventilated, darkened rooms, with the absence of all excitement and irritation. Giving the greatest attention to secure the proper performance of the various functions of the body. The trial of the hot baths after the method of Aufrecht in all cases in which they seem to do good. The practice of intraspinal puncture, with drainage when necessary to relieve severe pressure symptoms, to be repeated, if necessary, provided benefit follows the first puncture. The use of antipyrin in cases in which the temperature is raised not only for the relief of this symptom, but for the mitigation of headache and hyperesthesia. Dr. Stockton has found this drug also useful in improving the mental state, and in his hands it has not been followed by the expected depression. The use of opium or the bromides alone, or in connection with antipyrin, if necessary, for the relief of convulsions, pain, hyperesthesia and pressure symptoms generally, which are not relieved by the foregoing methods of treatment. The use of mercury when needed for its laxative effect, or when needed to assist in stimulating the organs of elimination opium and the bromides are indispensable in some cases and large doses are at times necessary.

Immunity.—Chapter X of this article in the *Journal of the American Medical Association*, April 1, 1905, deals with the Gruber-Widal reaction and its use in the diagnosis of typhoid fever. It is stated that it is largely a matter of accident that the reaction is called Widal instead of Grunbaum, as Grünbaum was carrying on the same work at the same time, but Widal preceded him in the publication of his more extensive work. It is stated that when a normal serum is found to have a high agglutinating power the previous infection by the micro-organism is to be thought of, and attention is called to the fact that the serum of a new-born child is devoid of many of the agglutins which are found in later life, hence, many of the so-called normal agglutinins may be acquired properties. The term immune agglutin is applied to the agglutinating substance of a serum when the property has developed as a result of infection, or of systemic immunization of the organism. This chapter takes up the variations in agglutinogenic organisms and the variations in agglutinin. It is stated that the agglutinating power of the serum of a typhoid patient varies from day to day, and that it may be thirty times as strong one day as the next, or may even disappear for a day or two. The possibility of agglutinin being found in the serum of a child whose mother had had typhoid fever during pregnancy is discussed. The Pfeiffer reaction is considered and the technic of the agglutination test is described.

Gastric Cancer.—G. W. McCaskey (*Jour. A. M. A.*, April 1, 1905) points out that in the early diagnosis of malignant gastric disease there is no single symptom or analytic finding, the presence of which is diagnostic or its absence exclusive. The same is perhaps true of any combination of several symptoms, still the diagnostician

is not entirely at sea. A thorough study of each case as to the disturbed gastric function, its duration, development., etc., is essential. The external physical examination would be presumably negative. Examination of stomach contents before breakfast, both chemical and microscopic, may afford aid. The presence of lactic acid, of the Oppler-Boas bacillus, of gastric catarrh, or broken-down blood cells are all more or less significant. Then the digestive processes should be studied. The presence or absence of hydrochloric acid and its amount, if present, the intensity of the biuret reaction or its absence and the presence or absence of the various enzymes are salient points here. All these may strengthen or dispel suspicion, but the patient should be kept under critcal study and treatment, the therapeutic tests being of the utmost importance. McCaskey thinks that gastrectomy should be the operation of choice as affording a longer chance of life. If we are ever to get the better of gastric cancer it will be when the internist learns to suspect the condition early and has the courage to act on the suspicion before it becomes a certainty.

NEUROLOGY AND PSYCHIATRY.

The Pathology of Infantile Paralysis.—A histological study was made by F. E. Batten (*Brain*, Autumn, 1904), of sections of the spinal cord of three fatal cases of infantile spinal paralysis, from which the author draws the conclusion that this disease is due to a primary thrombosis of a branch or branches of the anterospinal artery supplying the gray matter of the anterior horn, that such thrombosis may be produced by many and various forms of infection, and the disease is not due to a special specific infection, that the condition is more likely to occur in the lumbar region owing to the blood supply of this portion of the cord being at a point most distal from the heart, and the long course of the reinforcing arteries.

A New Symptom in Hemiplegia.—A phenomenon which is not described in the text-books, has been observed in cases of hemiplegia by K. Heilbronner (*Deut. Ztsch. f. Nervenheilk.*, December 29, 1904). In recent cases of hemiplegia the inner and outer contours of the thigh broaden out, lessening the anteroposterior diameter. While the circumference of the thigh on the healthy side approaches closely the circumference of a circle, the circumference of the paralyzed side gives the impression of a flattened oval. This symptom is a constant one in recent cases of hemiplegia. It is not the result of the limp rolling outward of the lower limb, for it is observed if the limb is brought close up to the healthy member. This manifestation is also observed in other parts of the body, but on account of the lesser degree of muscularity it is not so prominent. This symptom is of diagnostic value only in case the lesion is unilateral in order that these may be a healthy limb for comparison. This prenomenon does not appear in normal sleep, in which muscular tone is preserved. Likewise in ordinary cases of loss of consciousness this symptom is lacking, and the same is true of deep narcosis. The symptom is present in severe cases of acute alcoholic polyneuritis, and in recent cases of acute anterior poliomyelitis. It is not a prominent manifestation in tabes dorsalis. In hysterical flaccid hemiplegia the symptom is not present. Of extremely practical importance from the diagnostic standpoint would be this symptom of "broad-leg," as it is termed, in cases of apoplectic coma, if it should be present at a time when every active or reactive muscular act is absent, and both extremities offer no resistance to passive motions. It is also of value in the differential diagnosis from hysterical paralysis.

Tumors of the Hypophysis Without Acromegaly.—That disease of the hypophysis does not necessarily cause acromegaly, is clearly indicated by the histories of the two cases reported by J. Kollaritis (*Deut. Ztsch. f. Nervenheilk*, December 29, 1905). The first case was that of a sixteen-year-old girl who contracted syphilis and six months later complained of severe pains in the head and neck, particularly at night. A few days later there occurred a right abducens paralysis, repeated vomiting and vertigo. The swollen glands showed that the system was no yet free of syphilis. An intensive mercurial treatment was instituted. In spite of this, to the above symptoms were added right-sided ptosis, and double abducens and oculomotor paralysis, whose intensity varied. On account of the severe pains .02 to .06 grams of morphine were administered daily. A month later there occurred attacks of convulsions with dyspnea and unconsciousness. These attacks were frequently repeated. Four months later there occurred paralysis of the right accessorius and of the right vocal cord; the sense of smell was also impaired. Tubercle bacilli were found in the sputum. The patient became weaker and complained of loss of vision. Two months later death occurred. Autopsy showed a sarcoma of the hypophysis in which no part was healthy. The first symptom of the disease occurred nine months before death. Besides its bearing on the question of acromegaly, this case showed that nocturnal headaches cannot serve as a diagnostic sign of lues as against tumor of the brain. The second case was that of a 28½-year-old woman who one year before her death complained of severe headaches at night, and a half year later suffered a diminution in vision and a paralysis of the left abducens. At first the fundus of the eye was normal but later there was observed a choking of the temporal border of the disk. The second branch of the left trigeminal nerve was affected with anesthesia dolorosa, which later disappeared. The area of innervation of the right trigeminal also became painful. Exophthalmos appeared. One year elapsed between the appearance of the first symptom and death. Acromegaly was at no time observed. Autopsy revealed an angiosarcoma affecting the entire hypophysis. The nocturnal headaches at first pointed to syphilis, but the mercurial treatment was of no avail.

Paralysis from Fright.—A case of paralysis from this cause in which the patient, a girl of sixteen years, sustained a complete loss of function in all four extremities, is reported by E. v. Leyden (*Berl. klin. Woch.*, February 20, 1904). Sixty hours after being badly frightened by an attempted burglary, the girl was suddenly deprived of motion and sensation in legs and arms, together with paralysis of the lower abdominal muscles and the sphincters of bladder and rectum. The latter recovered their tone within a few days, but the paralysis of the limbs lasted for about ten days. It must be assumed that in psychical, as well as in traumatic shock, the nerve impulses to and from the cerebral centers of motility and sensation, are interrupted. Examination showed that electric conductivity in the peripheral motor nerves was not interfered with, but that the transfer of sensory impulses to the motor paths could not be accomplished. The voluntary motor impulses was also present but could not be transmitted through the spinal ganglia to the peripheral motor nerves. The author is therefore of the opinion that we have to deal here with the cerebral as well as the spinal ganglion cells, which leads to an inhibition of the normal impulses in both the sensory and motor systems. The prognosis of these cases seems to be quite good and the treatment should

be psychical and stimulating, the latter consisting mainly of strong faradic currents sufficiently powerful to produce contractions and sensations in the affected limbs.

OBSTETRICS AND GYNECOLOGY.

Pregnancy and Labor in Primiparæ of Thirteen to Sixteen Years.—In a series of observations made in Buenos-Ayres, S. GACHE (*Ann. de Gynéc. et d'Obstet.*, December, 1904) one notes the extraordinary procreative ability of the women of that city, which starting with a precocious menstruation, is prolonged until the forty-fifth year. The occurrence of pregnancy in girls who have not yet menstruated indicates that there is no absolute correlation between ovulation and menstruation. From the thirteenth to the sixteenth year women are not more exposed than later to abortion or complication of pregnancy. Among 91 cases studied, there was only one contracted pelvis, from defect of development, and three cases of slightly had a good result. The accouchement of these minors was normal, with the exceptinon that the labor was longer than usual. There were 85 vertex presentations and five pelvic. Forceps was applied six times. Lesions of vagina, vulva and perineum were rare, and in all cases quickly healed. There were no cases of insertion of the placenta in the inferior segment of the uterus. The mean weight of the fetus was 3,039 grams (6.6 pounds). The proportion of sexes was nearly equal, being 44 boys to 45 girls.

Albuminuria and Nephritis of Pregnancy and Labor. The problems of the relationship of pregnancy and labor to kidney changes has led R. W. STEWART (*Am. Jour. Obstet.*, January, 1905), to publish conclusions inferred from frequent analyses of the urine of five cases both before and after labor. The following facts may be noted by referring to the details of the cases: (1) In four cases of nephritis the kidney function was normal until within the week preceding delivery. (2) In four cases there was a marked increase in albumin from the time of its first appearance and a very decided increase in albumin leucocytes and casts immediately after delivery. (3) In two cases there was marked diminution in the quantity of the urine. (4) The ending of pregnancy was followed in a relatively short time by a cessation of all threatening symptoms. (5) With one exception, in all cases symptoms of renal insufficiency appeared before labor had set in. It is the prevalent belief among obstetricians that pregnancy is of itself responsible for kidney lesions. Against this speak the facts that in the great majority of cases there are no symptoms which point to a change in kidney function; that in most cases the albuminuria will disappear under medical treatment, pregnancy not being interfered with. If pregnancy were a potent cause in the production of albumin the examination of the urine should show a constant increase in the number of cases in which it would be found, the further the woman progressed in gestation. The writer's figures do not bear out any such assumption. In explanation of the facts observed in this series of cases the conclusion is offered that in cases of simple albuminuria the pressure of the enlarging uterus upon the intestines may produce sluggishness in peristalsis and consequent constipation; this in turn may cause retention of the products of decomposition, then subsequent absorption into the general system and thus additional work thrown upon the kidneys; the consequent effort on the part of the kidney to throw these products out of the system would in time produce hyperemia of these organs, kidney fag and hence albuminuria. In these cases normal function may be restored by unloading the intestines and the liver, in its severer forms, cases in which the intestines are neglected or digestion overtaxed, the persistent renal hyperemia may cause true nephritis. This theory would make the hepato- and auto-toxemias secondary factors and remove them from the category of primary causes.

Ovarian Cyst Containing Lumbricoides.—An unusual example of the migratory habits of the lumbricus, is reported by E. DUFOUR (*La Clinique*, March 4, 1905). The case was that of a seventeen-year-old girl who had never menstruated, and who a year before she came under observation by the author had been under hospital treatment for what had been diagnosed as tuberculous peritonitis, for which she had been discharged improved. Soon afterward a tumor appeared in the suprapubic region extending upward and to the right. It caused but little pain and a slight difficulty in urination. The latter was exaggerated one month before she entered the service of the author. A median laparotomy was performed, and there was found in the right of the pelvis a large encysted tumor, adherent to the surrounding parts and to the intestine, and presenting a number of cysts on its surface. The efforts to free the tumor from its adhesions revealed behind it a fungous tissue, and a cystic pocket on its surface, which contained a gelatinous liquid containing three living round worms. The examination of the intestinal loop to which the tumor had been adherent, revealed two minute perforations. The latter were sutured and the tumor was freed and removed. A part of the fungous tissue could not be extirpated. There was no sign of tuberculous peritonitis. The tumor was a multilocular cyst of the ovary. The fungous tissue was of an inflammatory nature. The patient made a good recovery with the exception that a fistula remained, which up to the present has resisted all efforts to make it heal.

PRESCRIPTION HINTS.

Sedative and Carminative.

℞ Dionini ..... gr. iii
Ol. Cajuput ..... m. iii
Chloroformi .....
Ext. Cannab. ind. fld. .....
Tr. Galanga, or ..... aa. m. xlvi
Tr. Zingiberis .....
Acid. Hydrocyan. dil. ..... m. ix
Alcohol, ad. ..... ʒ ii

Sig.: 30 to 60 drops in water.—Jas B Johnston

Treatment of Flatulence.

℞ Peroxide of magnesium ..... grs. vi

For one wafer to be taken half an hour before each meal

After meals, the following powder:

℞ Prepared chalk ..... grs. xv
Bicarb. of soda ..... grs. viii
Calcined magnesia ..... grs. viii

In case of burning sensation in the stomach and pyrosis:

℞ Prepared chalk ..... grs. xv
Subnitrate of bismuth ..... grs. vi
Calcined magnesia ..... grs. xii
Codeine ..... gr. 1/6
Powdered belladonna ..... gr. 2/3

For one powder.

Preparations of naphthol should be avoided, as they irritate the stomach.

Diarrhea of Consumptive Patients.

℞ Methylene blue ..... grs. iii
Lactose ..... grs. xx

For one wafer, to be given daily.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, APRIL 8, 1905.

THE MILK IN THE ISTHMIAN COCOANUT.

The controversy that has lately arisen between Dr. Chas. A. L. Reed and the defunct Isthmian Commission is not only a very unfortunate one, but comes at a singularly inopportune time. With the merits of this dispute we have, at this time, nothing to do. It may be, as the Secretary of War claims, that Dr. Reed, who was sent to Panama as a member of a commission to condemn the land used for the construction of the canal, and was asked incidentally by Secretary Taft to give his ideas on sanitation derived from a personal view of the situation, rushed hastily into print before reporting to his superior officer. If such be the case, he has already been admonished by the letter of the President of the United States.

It may also be true on the other hand, as Dr. Reed insists, that bureau circumlocution and red tapeism, like the mills of the gods, grind slowly, and it must be admitted in the refusal of the Isthmian Commission to grant a small appropriation to Dr. Gorgas, to enable him to insure the appointment of a desired assistant, that they ground exceedingly small. But it is not the merits of the claims of either party in this unfortunate quarrel that is of the first importance to the medical profession at large, but the effect that these charges and countercharges, these "reports" and "answers" will have upon the laity and lay press, and through them upon Congress, in whose hands the key to the whole situation really lies.

Now, it must be borne in mind by every medical man that while the work of the last few years in tropical climates has been marked in success and brilliant beyond words in achievement, that the agency of the mosquito and its action in the propagation of yellow fever and malaria, while it has been accepted by them as a fact, is yet looked on with doubt by the masses and still remains to them what it has been christened by a more or less scoffing public press, "The Mosquito Theory." They must also remember that yellow fever and malaria will occur in sporadic cases, no matter how carefully the modern precautions are taken or improved sanitation is carried out. The situation in fact resembles that of the New England town after the installation of a fire engine, which was purchased by the "selectmen" against the wishes of a majority of the inhabitants. Soon after its appearance a fire broke out. This was in course of time followed by another conflagration, and then the wrath of the community was poured out in floods on the heads of the officials. They did not take into consideration that the fire was more easily subdued and the resulting damage less; they had spent the money and they were dissatisfied with the result attained. Now the amount of materials for use in disinfecting already purchased and forwarded is as follows: 14 tons of insect powder in 16 shipments; 52 tons of sulphur in 17 shipments; 2 tons of sulphate of iron; 23 tons of chloride of lime; 500 pounds of sulphate of copper.

Take this list of materials and add to it the expense of laborers, "which have been allowed as required and as necessary and have been numbered by hundreds in the Health Department" (see "Reply Isthmian Canal Commission," page 32) and let there be a few cases of yellow fever in the canal zone, and the American secular press will shout in glee from the very hilltops. Not only will they influence the people at large, and through them the Congressmen, in regard to appropriations, but they will cast discredit and unbelief over what has been the greatest triumph in American preventive medicine.

There is another point, too, that should be remembered, and that is, that the comparison so

often made between the work at Havana and that on the Isthmus is not a fair one. For the situation is a different one. In the first place, Havana was a paved city, no matter how dirty it may have been, while the track of the canal lies through an uncut, almost impenetrable jungle. Again the work in Cuba was accomplished under the rule of Gen. Wood, who was not only himself a medical man, but he was also a military governor, with personal and direct command of unlimited money, for which he did not have to account to the United States. He was a dictator, simply expending the revenues of Cuba, and had he so desired he could have drawn a check for a million of dollars and expended it for warming pans without being obliged to submit a voucher to the Treasury Department, for not one dollar of the funds of this government was spent in sanitation there.

Now, the one power similar to this is vested in Congress. If it had desired, Congress could have appropriated a lump sum to a medical commission who could by their orders have expended it without delay, friction or red tape. But Congress did not only *not* do this, but particularly avoided it, so as every cent spent in this work has to be expended by rules laid down in the previous bill, it strikes us that the time has come when the whole energy of the medical profession should be concentrated on an effort to induce the next Congress to pass such a bill and not be wasted in expostulations with a commission appointed to carry out certain definite instructions. If the present restrictions are cumbersome, as without doubt they have proved to be, then get Congress, who has the power to do so, to change them. Meanwhile bend every effort with the force and material at hand to make as good a showing as possible, and thus avoid a total loss of all that has been hitherto accomplished.

As we have already stated, we have at this time nothing to say in regard to the merits of this controversy, but we must admit that in one case cited the commissioners erred; if not in the abuse of power, at least in the exercise of tact. When the "expert" from Panama presented his letter from Dr. Gorgas to the chairman at Washington, requesting that he might be permitted to select the X-ray and microscopical apparatus, he was informed that he could proceed to New York invested with full power to make the purchase. At this he demurred and stated, "that the commission asked too much, that he had other things to do and did not care to work on his vacation, and that someone else should be asked to select them." Whereupon the matter was submitted to the Marine Hospital Service, with the request that they should purchase them. Now, we are not ourselves "surgeons in the service," but we have lived near the rose and recognize its perfume. Moreover, we can realize that nothing would be so galling to the Colonels and Majors of one branch as to be obliged to use the apparatus selected and purchased by the Admirals and Commanders of the other.

HOME AND DISPENSARY TREATMENT OF PULMONARY TUBERCULOSIS.

In the March, 1905, *Post-Graduate* are interesting accounts of the results of home and dispensary treatment of the consumptive poor, as carried on at the Post-Graduate Hospital Dispensary from 1898 to 1905. The plan of treatment was inaugurated by Dr. John F. Russell, and has been carried on by him and by his assisttants, though the reports are from a committee of inspection appointed by the trustees of the institution.

Starting with the assumption that consumption is only possible with defective nutrition, and notably with defect in the storage of fats, the plan of treatment is essentially dietetic, with especial reference to the supply of fats. During examinations the patients remain at home in bed, but many have carried out the treatment to a successful end while pursuing their regular work. When under full diet the patient receives proteids, 181 gms., fats 316 gms., carbohydrates 239 gms., of 4,668 calories. This is 608 more calories than prescribed in Playfair's dietary for a man doing hard labor, and two to three times its amount of fats, and about half the carbohydrates most authorites regard as necessary for laboring men.

Under this method of treatment the committee of inspection reports forty apparent cures, the cure being based upon the disappearance of tubercle bacilli from the sputum, disappearance of symptoms, and gain in weight. Of fourteen patients whose histories are given in detail, who completed an eight weeks' course of treatment in bed, the average gain was 15.1 pounds, the least gain being 5.5 pounds, the greatest 24.5 pounds.

Beginning with the year 1905 the treatment is carried out at a small, specially equipped, hospi-

tal, at 322 East Nineteenth Street. In these new surroundings, where the dietetic needs of its individual patients can be more positively ascertained by means of chemical analysis of tissue waste, still more satisfactory results may be looked for.

SOME ASPECTS OF PUBLIC SANITATION.

The heated controversy between the New York municipal authorities and the Interborough Rapid Transit Company, over the right of the former to compel the removal of signs and other impedimenta from the subway, is awaiting judicial decision.

Those who have followed the proceedings incident to this litigation may recall that each party has called to its aid the services of a prominent sanitarian. Dr. George A. Soper, on behalf of the city officials, submitted an affidavit affirming his belief that subway signs afford a nidus in which, under the favorable condition of absence of sunlight, a host of pathogenic bacteria may propagate at liberty. The parties interested in keeping these embellishments of the tunnel stations retained the services of Dr. Wm. H. Park, who found experimentally that dust removed from the frames of the subway signs actually showed fewer colonies of bacteria than equal quantities of dust removed from different parts of the street and sidewalks above.

At first sight, the results of these investigations would seem to seal the fate of the people's case. But on close analysis, the bacteriological findings lose in significance. Would it be too exacting to ask whether the subway porters had been given secret instructions the day before to thoroughly wipe the gilded frames enclosing eulogies of somebody's "Consumption Cure" or "Hair Restorer"? Moreover, it was too premature to take account of such emergencies as the subway strike, when the walls of the stations would naturally be neglected. Besides it is hardly fair to compare an enclosed space in which, as the strike has abundantly indicated, the public may be compelled to crowd and await indefinitely the arrival of the next express, with the broad open highway above, where no one is obliged to linger and where crowding is rare. It certainly does not redound to the credit of the street-cleaning authorities that so many bacterial cultures could be obtained from the public highway—but here we are giving the subway people a retort to fling back at the city officials. In short, the question narrows itself down to this: Shall any weight be given to bacteriological findings under the conditions cited above, at a time when the subway is new, and when far different results may be obtained at a later date, particularly when interested vigilance is apt to be relaxed?

The campaign against public expectoration is still being fought, and although a considerable degree of success is being achieved, a great deal remains to be done. The health officials are coming to realize that the almost total abolition of the spitting evil will not result from merely punitive efforts, but will be attained only by a general educational uplift of the masses. As the first step in this direction, little slips of paper will be pasted in all the text-books issued to the public-school children, on which are printed descriptions of the evils of expectoration. It is true that the children are not the main offenders in this direction, but the text-books come into thousands of households, and the pasters will certainly attract the attention of many offending adults. It has been suggested that more immediate good would be accomplished by having these hygienic instructions printed on cigar labels, tobacco-wrappers, street-car transfers, etc.

An evil whose consequences are far more baneful than those of expectoration, and which has been curiously overlooked by health authorities, is the practice frequently indulged in by passengers in public cars of coughing indiscriminately without protecting their mouth by means of a handkerchief, or even their hand. During a grippe epidemic it is not uncommon to see a dozen individuals in the same car indulging in coughing and sternutatory efforts to their heart's content. These two reflex acts, when the mouth or nostrils are unguarded, are far more dangerous than expectoration; in fact, the product of a cough may be termed a nebulous expectoration. Disseminated thus by a germ-laden atmosphere, no wonder many diseases involving bronchial irritation are so markedly contagious.

ECHOES AND NEWS.

NEW YORK.

The Meningitis Situation.—One hundred and thirty-one persons died of meningitis last week, as compared with eighty-five the week before, and the latter number of deaths was higher than that of any of the preceding six weeks, the figures running for the last eight weeks 27, 40, 48, 62, 78, 85 and 131. For the week of 1904 corresponding to last week the deaths from this disease numbered thirty-one.

Physicians in all parts of the city have been called to attend hundreds of cases of the disease in its milder form.

Board of Estimate Appropriation.—The Board of Estimate has authorized the issue of bonds to the amount of $1,000,000 for the use of the Board of Health in improving hospitals, and $750,000 to improve the sanitary condition of the celebrated Gowanus Canal, in Brooklyn. Dr. Darlington, president of the Board of Health, had asked for $4,500,000 for building new pavilions and additions to various hospitals and for general improvements. The board went through his list and selected what they regarded as urgent matters and gave him $1,000,000 for the year. This is in addition to the regular annual appropriation for current expenses.

Society of Sanitary and Moral Prophylaxis.—A meeting of this Society will be held at the Academy of Medicine, 17 West Forty-third Street, on Friday evening, April 14, at 8:30 P.M. The following is the interesting program: (1) Adoption of Constitution and By-Laws; (2) Education in Sexual Hygiene, by Dr. John H. Elliott, of the Hudson Guild; (3) The Sexual Necessity, by Dr. Edward L. Keyes; (4) Attitude of the Church toward Sexual Hygiene, by Rev. Henry A. Brann, Rector of St. Agnes' Church; (5) Ignorance, Perversion and Degeneracy, by Frank Moss, Esq., of the Society for the Prevention of Vice; (6) Education within the Medical Profession, by Dr. Prince A. Morrow. The papers will be discussed by prominent members of the laity and of the medical profession.

A Sanitary Census.—Although the taking of a sanitary census of the city has been contemplated for some time by Health Commissioner Darlington, the baffling persistence of cerebrospinal meningitis has emphasized its urgency, and the work is to be undertaken promptly. Cards have been made out, by means of which the number of persons in each house, their nationality, condition of health, date of birth and other essential information can be recorded. If a foreigner is suffering from any disease an attempt will be made to discover whether he contracted it before coming to this country or since. Also the number and character of cases of illness in any one house within a year will be set down, with the conditions prevailing in the house.

The New St. Francis Hospital.—While the medical board of the St. Francis Hospital has to express regret in the annual report that the new hospital is not yet ready for occupancy, as it was expected that it would be by this time, it shows that the work accomplished during the year in the present quarters has been more than ordinarily successful. The delay to the big new building now being erected on East One Hundred and Forty-second Street has been caused by labor troubles, but as the strikes have been declared off, it is almost certain that the sisters will move to their new home at least by September. During the year 2,797 patients were treated, of whom 1,684 were cured and 495 were reported as having distinctly improved. The death rate for the year was 9.84 per cent. On January 1, 1905, there were remaining in the hospital, 251 patients. The details of the medical report, in which figures are given concerning the treatment of every disease treated in the hospital, afford some idea of the diversity of the work of the physicians and surgeons. They cover no less than seventeen pages of the pamphlet.

Poliklinik's New Home. The German Poliklinik of this city, which has recently purchased the building of the German Dispensary, at No. 137 Second Avenue, is making an appeal to its friends for subscriptions to its new building fund. The German Poliklinik is a charitable institution for the free medical treatment of the sick poor, founded in the year 1883. Since that time its corps of physicians have taken care of 327,282 patients, free of charge; these patients visited the Poliklinik 1,014,682 times, and received 723,355 prescriptions, which were compounded in the drug store attached to the institution. The present building, Nos. 78 and 80 Seventh Street, having become visibly inadequate for the work required, the society contemplated enlarging its facilities by making extensive alterations, when it learned of the possibility of acquiring the building of the German Dispensary, and after some negotiation with the board of trustees of the German Hospital and Dispensary, the contract was signed for the purchase of the property. It is said for the Poliklinik and without fear of contradiction that this charity, with the old German Dispensary gone, will become absolutely indispensable to the sick poor of the lower East Side. Henry Schmidt, M.D., No. 78 Seventh Street, is treasurer of the German Poliklinik.

Meningitis Commission Meets.—The commission to investigate cerebrospinal meningitis, appointed by Health Commissioner Darlington, had its first meeting recently, in the Health Department building, at Fifty-fifth Street and Sixth Avenue. The commission consists of Drs. W. F. Polk, W. B. James, W. P. Northrup, Simon Flexner, J. F. Van Cott, E. K. Dunham and William K. Draper. Dr. Polk, who is dean of the Cornell medical school, has not yet accepted the appointment. He was the only member absent at this meeting. His place as chairman of the commission was filled temporarily by Dr. James. Dr. Draper was appointed secretary. The commission spent some time studying maps of the city with regard to the prevalence of the disease in certain localities, and in considering the conditions peculiar to those localities. They also had before them the tabulated statistics of the disease for several years back. Drs. Northrup, James and Draper, representing the clinical end of the committee, and Drs. Flexner, Van Cott and Dunham, the bacteriological end, then considered in groups and points to be investigated under each head. The commission decided to issue cards to doctors in hospitals, with blanks to be filled in with desired data, as was done by the pneumonia commission last year. While the final list of questions to be asked in these cards was not settled, the commission will want to know, under the bacteriological end of the investigation, what are the evidences of communicability and what is known of the biology of the disease bacilli, with reference to differentiation, agglutination and pathogenesis. Under the clinical head they will inquire about the effect of drying on the bacilli and viability in spray, as bearing on isolation and infection. Complete information about the patients' surroundings and the conditions under which they were stricken with the disease will also be collected. It is probable that the scope of the investigation will be world-wide and that information will be sought from hospitals all over the globe. This commission is only the second of the kind that has ever been appointed in New York. The pneumonia commission, appointed last year, is still at work.

Manhattan Dermatological Society.—Regular monthly meeting of this society was held on Friday evening, March 3, 1905, at the residence of Dr. I. P. Oberndorfer, with Dr. E. L. Cocks, presiding.

Dr. W. S. Gottheil showed the following cases: (*a*) Case for diagnosis; a boy of eight years showed lesions on the face, about arms and abdomen; lesions of two years' duration; history shows a brother likewise affected; the lesions consist of old scars and the newer ones, of ulcerating, hypertrophic granulations of varying sizes and in all stages of evolution, from small beginning necrotic lesions to large ulcerating masses. Dr. Gottheil believes the condition to be hereditary syphilis. Most of the members agree in calling it hereditary syphilis. Dr. Cocks thinks a tuberculous process may likewise be present. Dr. Allen is of the same opinion. (*b*) Dr. Gottheil again presented his case of acne cornea; new lesions are seen on the face and also on the hands. Old lesions disappear spontaneously. (*c*) Dr. Gottheil then showed a male adult with a lesion on penis. The patient states he had a sore on penis a short time ago; at present there is some induration at this site; also dry scaly patches of eczema along the glans penis, extending from the urethral orifice; some macules observed on body and a few very large papules on lower limbs. Patient is not taking any drugs. Drs. Bleiman, Weiss and Heiman regard the initial lesion as chancre and the scaling patches on body as a psoriasis. Dr. Kinch said the early appearance of a scaly eruption on body coincident with the appearance of the chancre did not favor diagnosis of a luetic body lesion; the latter he regards distinct and as psoriasis. Dr. Pisko favored diagnosis of syphilis for the lesion on body. Dr. Oberndorfer said the lesion on body was a very early manifestation, if it were a syphilitic lesion. He had some doubts about it. The penile lesion was a hard chancre. (*d*) Dr. Gottheil also showed a boy with well-marked patches of leucoderma; scabies was also present.

Dr. A. Bleiman showed a case of prurigo in a boy of eight years (same case shown last spring), illustrating the result of treatment. A few papules and squamous lesions with slight induration of the skin over the shins are still observed, but in all the condition of the skin is considerably improved. The patient has never enjoyed freedom from eczematous lesions, for so long a period, now six months, since the process began when two years old, and the prognosis as to ultimate recovery seems to be good. The best results seemed to be obtained after the use of 2 per cent. ichthyol ointment, daily baths and internally syr. ferri iodati.

Dr. B. F. Ochs presented a woman, showing gummatous lesions on the lower leg extending to and involving the foot. A second case (in a woman) of a complete perforation of the cartilaginous septum of nose; ten years ago history of nasal catarrh with beginning flattening of the nose; one year ago similar symptoms. There is no history of infection and no other lesions present on any part of the body. Dr. Ochs presents it as a case of syphilitic necrosis.

Dr. Kaplan showed for Dr. Gottheil a case of nevus unis lateris; a boy of four years presents an intensely blue nevus, covered abundantly with fine hairs, along the right upper and lower arm; a few isolated warty pigmented spots on back and left arm. Dr. Gottheil stated the condition might be better termed nevus pilosis, as pigmentosus verrucosus (congenital) X-ray will cause epilation; as to ultimate results he is doubtful if any course of treatment would influence it. Dr. Bleiman said, as to prognosis, in advanced adult life such a growth may be a source of danger and assume malignancy. Dr. Allen advocated X-ray and high frequency spark. Dr. Pisko saw a similar case in which X-ray and high frequency currents showed no decided results; but electrolysis for destruction of the hairs partially succeeded. At present the case is under ultraviolet exposures and the condition still remains unchanged.

PHILADELPHIA.

A Benefit for the Hahnemann Hospital.—The proceeds of the tableaux given last week at the New Century Club will go to the Hahnemann Hospital.

Resigned.—F. W. Koons, superintendent of the Hahnemann Hospital, resigned his position, stating that he intends to resume his studies in medicine next fall.

Portrait of Prof. Forbes to be Presented to the Jefferson Medical College.—As a token of their respect, the undergraduates and alumni of the Jefferson Medical College, will present to the College the portrait of Dr. Forbes.

Leper Patient Improving.—Moses Kailioha, a Hawaiian leper, who has been at the municipal Hospital for one year, is improving rapidly under the treatment instituted. So encouraged are the physicians at the hospital that they cherish the possibiliy of curing the patient.

To Discriminate in Dispensary Practice.—The Senate has passed a bill which gives to the State Board of Charities the power to license and regulate dispensaries. The bill makes it a misdemeanor for any person to obtain medical or surgical treatment at the dispensaries on false representation as to their financial condition.

An Act to Modify the Proceedings of the State Board Examination.—Through the influence of Dr. J. W. Holland, Dean of the Jefferson Medical College, a bill has been introduced into the legislature which, if passed, will permit a medical student, at the end of his sophomore year, to take the State Board Examinations in anatomy, chemistry and physiology.

Conference of Anatomists.—Upon April 11 and 12 the American Anatomists will meet in the Wistar Institute of Anatomy at the University of Pennsylvania, this city. The most important subject which will be brought up for discussion, is the founding of a central institute for cooperative investigation in the realms of anatomy. On the evening of April 11 the conference will be tendered a reception by General Wistar at his home, southest corner of Seventeenth and Spruce streets.

Diplomas Awarded.—Last week eighteen young women, of the Pennsylvania Hospital Training School for Nurses, received their diplomas, which will entitle them to enter upon their chosen profession. The diplomas were presented by J. T. Shinn, secretary of the Board of Managers, and after the presentation Dr. Alfred Stengel, of the hospital stag, delivered an address during which he informed the young women that they have chosen a profession which requires more sincere work and patience than any other calling and that their success will depend upon the exercise of skill and ability to the best advantage and upon the application of the accumulated practical knowledge received at the hospital.

Sanitation in Office Buildings.—This was the subject of Dr. Henry Leffmann's paper read before the regular meeting of the Engineers' Club. He first spoke of the bad quality of water supplied and then of the additional contamination of the water by ice

which is infected by the buckets and containers in which it is distributed to the water tanks. He told his audience that the water which he drinks is cooled merely by contact, that is, he allows the bottle containing the water to lie in contact with the ice only. In speaking of cleaning a building, he maintained that the vacuum system of removing dust is the proper one, for it gets rid of the dust while the ordinary method merely stirs it up from day to day.

Academy of Surgery.—The meeting of this society was held April 3. Dr. G. G. Davis read a paper on the "Treatment of Fractures about the Neck of the Femur in which Fixation was Accomplished by Means of a Screw." The paper was discussed by Drs. Keen, LeConte and Roberts. Dr. A. C. Wood read two papers; the first on "Strangulation of the Vermiform Appendix by an Abnormal Opening in the Mesentery;" a second one on "Vermiform Appendix in the Sac of a Femoral Hernia." He reported two cases. This paper was discussed by Dr. Gibbon. Drs. Royer and Schwartz then read a paper on "A Case of Anthrax." Drs. Keen, Willard and Jopson discussed it. Dr. Keen then read a paper on "A Method to Fill Defects in Bone by Bone Chips." Dr. Stewart read a paper on "Osteomyelitis of the Tibia," in which the shaft was removed.

Governor Vetoes Bill to Check Idiocy.—The Governor takes the ground in vetoing the bill that the language is not clear, in that it does not describe the nature of the operation that is to be performed. He maintains that the safest and most effective method of preventing procreation would be to behead these individuals and such authority, he says, is given to the scientific men by the bill. A surgeon, he intimates, may be so eager to advance in skill as to forget the dangers he may subject his patients to. Such a bill, if passed, would violate the principles of ethics. These feeble-minded and imbecile children, he declares, are entrusted to the institutions by their parents or their guardians for the purpose of training and instruction. It is proposed to experiment upon them not for their instruction but for the welfare of the society and without the consent of the parents or the guardians. The Governor believes that if idiocy could be prevented by an act of Assembly such an act would have been passed long ago.

The Pennsylvania Legislature has Passed the Following Appropriation Bills.—*Philadelphia*, Woman's Medical College Hospital, $100,000; St. Agnes' Hospital, $100,000; Sanitarium Association, $10,000; Hospital Department, Hahnemann Medical College, $416,000; Philadelphia Orthopedic Hospital, $35,000; German Hospital, $110,000; St. Luke's Homeopathic Hospital, $150,000; Philadelphia Home for Incurables, $50,000; St. Mary's Hospital, $37,000; Wills Eye Hospital, $80,000; Philadelphia Lying-in Charity, $20,000; Rush Hospital for Consumptives, $210,000; Pennsylvania Sanitarium and Benevolent Association, $20,000. *Other Appropriations for Pennsylvania*, Bedford County Hospital, $21,000; Todd Sanitarium, Cambridge Springs, $6,000; Easton Home for Friendless Children, $3,000; Home for Aged and Infirm Women, Easton, $3,000; Good Samaritan Hospital, Lebanon, $31,500; York Hospital and Dispensary, $30,000; Williamsport Hospital, $50,000; Florence Crittenton Mission, Williamsport, $15,000; Home for Friendless, Williamsport, $15,000; Aged Colored Women's Home, Williamsport, $1,000; Chester Hospital, $30,000; Pottsville Hospital, $60,000; Meadville City Hospital, $14,000; Coatesville Hospital, $15,000; Todd Hospital, Carlisle, $7,000; Shenango Valley Hospital, New Castle, $41,000; State Hospital for Insane, Warren, $196,500; Western Pennsylvania Colored Industrial School, Lawrence County, $5,000; Valley Forge Park Commission, $116,815; Medical and Surgical Department of the Western Hospital of Pittsburg, $180,000; Allegheny County Association for the Prevention of Cruelty to Children, $7,000; St. Joseph's Hospital and Dispensary, Pittsburg, $75,000; Bradford City Hospital, $87,000; Phoenixville Hospital, $60,000; Mercy Hospital, Wilkesbarre, $45,000; Lock Haven Hospital, $25,000; Nason Hospital, Roaring Springs, $15,000; Women's Homeopathic Association of Pennsylvania, $85,000; Eagle Hospital for Consumptives at Summit Hill, Carbon County, $8,000; Charity Hospital, Pittsburg, $100,000; Children's Industrial Home, Harrisburg, $9,000; Conemaugh Valley Memorial Hospital, Johnstown, $45,000; Beaver County General Hospital, at Rochester, $12,000; Benevolent Association's Home for Children, Pottsville, $2,000; Children's Aid Society of Pennsylvania, $30,000; Du Bois Hospital, $6,000; Spencer Hospital, Meadville, $20,000; Mary M. Packer Hospital, Sunbury, $10,000; Chester County Hospital, West Chester, $20,000; Pittsburg Hospital for Children, $68,000; House bill to provide for a deficiency in the care of indigent insane, $100,000; House bill for the care and treatment of the indigent insane for the next two years, $2,000,000; Easton Hospital, $70,000; State Hospital for Insane, at Norristown, $223,000; to cover deficiency in the Pennsylvania Training-school for Feebleminded Children, at Elwyn, $36,874; State Hospital, Phillipsburg, $22,195; Pennsylvania Reform School, Morganza, $117,588; for the erection of a State Hospital for the Criminal Insane, $160,000; establishing an emergency fund for the suppression of epidemics, $75,000; State Hospital for Insane, Danville, $251,450; Titusville City Hospital, $14,000; Miners' Hospital, at Spangler, Cambria County, $15,000; Beaver Valley General Hospital, Beaver County, $37,000; Adrian Hospital, of Jefferson County, $24,000; Clearfield Hospital, $21,000; North Pennsylvania General Hospital, at Austin, $10,000; Monongahela Memorial Hospital, $20,000; Home for the Friendless, Harrisburg, $5,000; Wilkesbarre City Hospital, $70,000; Altoona Hospital, $50,000; St. John's General Hospital, Allegheny, $45,000; Sylvan Heights Home for Orphan Girls, Harrisburg, $10,000; Messiah Home Orphanage, of Harrisburg, $3,000; Johnstown City Hospital, $5,000; McKeesport Hospital, $80,000; St. Joseph's Hospital, Reading, $30,000; Homeopathic Medical and Surgical Hospital, Reading, $38,000; Reading Hospital, $39,000; Lewistown Hospital, $15,000; Allentown Hospital, $30,000; St. Luke's Hospital, South Bethlehem, $56,000; Home for Friendless Children, Reading, $7,000; Children's Home, South Bethlehem, $1,000; for two State institutions for the treatment of incipient tuberculosis, $300,000.

CHICAGO.

Epidemic Cerebrospinal Meningitis.—Between the first of the year and the present date, March 25, this disease has caused 550 deaths in New York City, a greater number than from any other cause except pulmonary consumption and the pneumonias, and the health authorities have secured a special appropriation with which to combat the pestilence. Of the four deaths reported in Chicago from this cause during the week, the latest, on Saturday, March 25, Dr. Wm. J. Class has completed his investigations of the first three, and reported that the evidence was not conclusive as to the nature of the disease. All three died of meningitis, but supervening on other diseases—two of them afflicted with

measles, and simple meningitis is a not uncommon complication in such cases. Proof is lacking that this was of the epidemic type. Thus much space is given to this subject now, because cerebrospinal fever is epidemic elsewhere, and may become so in Chicago; and because the disease is contagious and all suspicious cases should be isolated and treated as other contagions, including prompt report to the Health Department.

Sensational Medicine.—The Chicago Health Board Report remarks Dicken's fat boy "Joe" is again loose in the columns of the newspaper press and he "wants to make your flesh creep" with tales of half a million babies poisoned every year, with formalin in their milk; of unnumbered others of all ages, more slowly but not less surely done to death by borax and similar preservations in their adulterated food and drink of every description; and of hecatombs of victims of rare and therefore terrible diseases. Where all these slain are buried, how their corpses evade the undertaker and the certifying physician, the burial-permit clerk, gravedigger and cemetery superintendent is a mystery—the only solution of which is that "Joe" lies. Here in Chicago, where the death rate of all ages has diminished from 19.9 per 1,000 in 1890 to 13.6 per 1,000 in 1904, the deaths among the formalin-milk fed young have fallen from 707 in every 10,000 during 1890, to 347 in every 10,000 during 1904. These assertions do not rest solely on the testimony of the Department's Bureau of Vital Statistics, but are corroborated by the experts of the Federal Census Office.

An Act to Regulate the Practice of Optometry.—After due consideration of a Bill which is now pending before the State Senate, the Chicago Medical Society is of the opinion that the adoption of this Bill would be unwise and not in the interests of the people, and therefore appeals to Senators to vote against it. The Society gives the following reasons: (1) If a person's eyesight is defective, the first question to settle is whether the defect is due to disease or not. As the optometrists have not the requisite medical training to know whether an eye is sound or diseased, they are not competent to take care of and to prescribe for defects of the eyesight. (2) The fitting of glasses, especially for children and young adults, cannot be done accurately and satisfactorily without the use of the proper drugs. Innumerable instances could be cited, if desired, in which children received wrong glasses, to the detriment of their eyes and health, because no drugs were used in the examination of the eyes. This Bill, therefore, not only fails to improve upon the existing practice of opticians in prescribing glasses over the counter, but it puts the stamp of approval upon an unscientific and unreliable practice, and the Society believes it should be defeated.

Antitoxin Treatment of Diphtheria.—Ten years ago the antitoxin treatment of diphtheria was begun by the Department of Health of Chicago. During the previous ten years ended December 31, 1894, there had been 13,566 deaths from diphtheria and croup reported to the Bureau of Vital Statistics, a yearly average of 1,356, and a proportion of 13.53 deaths in every ten thousand of the population. During the ten years ended December 31, 1904, there were only 8,129 such deaths reported, a yearly average of 812, and a proportion of less than 5 (4.88) in every ten thousand of the population. These figures show a reduction of 5,437 in the actual number of diphtheria and croup deaths since the Department began the antitoxin treatment. They show a relative reduction in proportion to increased population of nearly 64 per cent.—63.9. Which is to say that, if the ravages of diphtheria had not been checked by the use of antitoxin during the last decennium, there would have been 22,538 deaths from this former scourge of the nursery, instead of the 8,129 that did actually occur—a saving of 14,409 lives. The satisfaction of the Department with its diphtheria antitoxin record is heightened by the reflection that the present administration of the Department inaugurated the work upon which the records are based.

GENERAL.

A Royal Physician.—On February 23, His Royal Highness Duke Karl Theodor of Bavaria, celebrated the twenty-fifth anniversary of his graduation as a Doctor of Medicine.

Dinner to Dr. Osler.—A farewell dinner to Dr. William Osler will be given at the Waldorf-Astoria, New York, on Tuesday evening, May 2, and invitations to subscribe can be obtained by applying to the Chairman, Dr. James Tyson, 1506 Spruce Street, Philadelphia, until April 20.

Gaillard's Southern Medicine.—Since the Amalgamation of *Southern Medicine and Gaillard's Medical Journal* (in October, 1904,) it has been decided to consolidate the name to *Gaillard's Southern Medicine* published by Gaillard's Southern Medicine, Inc. The officers of the incorporation are William Edwards Fitch, M.D., President and Treasurer; M. C. Fitch, Vice-President, and E. W. Fitch, Secretary.

Appointments of Drs. Barker and Thayer.—The Trustees of Johns Hopkins University elected Dr. Lewellyn Franklin Barker, now head of the Department of Anatomy in the University of Chicago and Rush Medical College, April 3, to the Professorship of Medicine made vacant by the resignation of Dr. William Osler. At the same time Dr. William Sydney Thayer, Associate Professor of Medicine in Johns Hopkins, was elected Professor of Clinical Medicine, a new chair.

A Medical Author.—Major Louis L. Seaman, who served as a surgeon in the United States Volunteers in the Spanish-American and Philippine wars and with the allied armies in the Boxer campaign in China, and whose account of the health conditions in the Japanese army has been more than once referred to in the various medical journals, has embodied his experience in a book entitled "From Tokio Through Manchuria with the Japanese," just published by D. Appleton & Co., New York. The work contains forty-two full-page photographic illustrations.

International Congress.—The Fifteenth International Medical Congress will be held at Lisbon in April, 1906. At a meeting of the National American Committee, held at St. Louis last September, the following Executive Committee was appointed: Frank Billings, M.D., William Osler, M.D., Frederick Shattuck, M.D., Abram Jacobi, M.D., and J. H. Musser, M.D., chairman. Any communications regarding the presentation of papers at this Congress can be sent to Miguel Bombarda, secretary at Lisbon; or to Dr. Ramon Guiteras, New York, secretary for this country.

An Antivivisection Story.—A prize was lately offered for an antivivisection story. If, says the *British Medical Journal*, we may judge from the accounts of it which we have seen, "Trixy," by Elizabeth Stuart Phelps Ward, an American writer of some note, would seeem to be the kind of thing required. Here is the lady's description of the assistant director of a large surgical institute in which researches in physiology are carried out: "His face . . . was brutal. He had the eyes of an inquisitor, lowering and shifty. To an ordi-

nary citizen his was a face to be dreaded. It was the type that was common in the sixteenth century. It was broad, flat, and surmounted by a rebellious fiery mane. But if his face would inspire dread, his hands gave the layman a nameless apprehension." A charming portrait; one wonders if it is from life. If it is, it is not unlikely that one of the antivivisectionist fraternity unconsciously sat for it, for faces of the inquisition type are, as far as our observation goes, more common among them than among their opponents.

Plague in India.—The terrific and increasing mortality caused by the plague in India is the subject of grave anxiety, as well as of much present hopefulness, on the part of the British authorities. At latest reports, deaths amounted to more than 35,000 a week. Nothing seems to avail against the disease except inoculation, to which the natives will not submit. At every return of cold weather the disease breaks out with renewed virulence. In the last week of December, 1902, the deaths were 14,000; in the same week of 1903 they were 17,000; in the last week of December, 1904, the total reached 19,645. Since then the mortality has increased at a terrible rate. For some years the plague made little progress in the United Provinces of Agra and Oudh, but during the last few months it has spread rapidly in this part of India, while in the Punjab the mortality threatens to be greater than ever. During the week ending January 28 the total number of deaths from plague reported throughout India was 33,087; for the week ending February 4 the total was 36,167; for the week ending February 11, 33,660; for that ending February 17, 27,837, and since then the mortality has risen again. Rather late in the day a special commission has been appointed to study the ethnology of the disease.

Cancer in Young Subjects.—Ten recent cases of carcinoma in subjects under thirty-one have been collected by Rhode (Inaug. Dissert., Greifswald, 1904). These cases are (1) cancer of the rectum in a tanner's boy, aged ten years; (2) cancer of the ovary in a maid-servant, aged nineteen years; (3) cancer of the stomach in a girl, aged twenty-two years; (4) cancer of the pancreas in a workman, aged twenty-three years; (5) cancer of the cardiac end of the stomach in a shepherd's boy, aged twenty-four years; (6) cancer of the duodenum in a tavern-inspector, aged twenty-five years; (7) cancer of the pylorus in a maid-servant, aged twenty-six years; (8) malignant gastric ulcer in a girl, aged twenty-six years; (9) cancer of the stomach in a maid-servant, aged twenty-nine years; (10) colloid cancer of the rectum in a baker (female), aged thirty years. These 10 cases were taken from a series of 322, cancerous patients on whom necropsies were performed in the Greifswald clinic in the course of twelve years. The number of cases from thirty to fifty years of age was 121; from fifty to seventy, 156, and from seventy to ninety, 35. Thus, although the number of cases in aged subjects was three and a half times as many as the number in persons under thirty years, the latter are not so free from malignant disease as is generally supposed.—*British Medical Journal.*

Medical Society of the Missouri Valley.—The seventeenth semi-annual meeting of this society met March 23, 24, 1905. The following program was given: "Surgical vs. X-ray Treatment in cases of Rodent Ulcer and Epitheliomata of the Face, with Demonstration of Operated Cases," by Dr. C. O. Thienhaus, of Milwaukee, Wis.; "Transverse Ribbon-shaped Cornea Opacity," by Dr. J. M. Sherer, of Kansas City, Mo.; "Some Points on Suprapubic Cystotomy," by Dr. E. N. Wright, of Olney, I. T.; "Injuries to the Spinal Column," by Dr. C. E. Black, of Jacksonville, Ill.; "Synchronous Extra and Intrauterine Pregnancy, with report of a case," by Dr. D. C. Brockman, of Ottumwa, Ia.; "Consideration of the Present Methods of Treatment of Retro-Displacements of the Uterus," by Dr. C. H. Wallace, of St. Joseph, Mo.; "Retrodisplacements of the Uterus; A New Method of Suspension," by Dr. O. B. Campbell, of St. Joseph, Mo.; "Surgical Treatment of Strangulated Hernia, with Remarks on Technic of Primary Bowel Resection," by Dr. John Young Brown, of St. Louis, Mo.; "Pelvic Inflammation, or Peri- and Parametritis," by Dr. H. C. Crowell, of Kansas City, Mo. Symposium on "Puerperal Fever." (*a*) "Diagnosis," by Dr. Robert T. Sloan, of Kansas City, Mo.; (*b*) "Treatment," by Dr. R. C. Moore, of Omaha, Neb.; "Chorio-Epithelioma Malignum," by Dr. A. P. Condon, of Omaha, Neb.; "Renal Affections Simulating Abdominal and Pelvic Diseases," by Dr. J. Block, of Kansas City, Mo.; "The New-born Infant; Its Care and Management," by Dr. A. D. Wilkinson, of Lincoln, Neb.; "Anesthetics," by Dr. Dora Greene-Wilson, of Kansas City, Mo.; "Some Observations upon the Treatment of Inguinal Hernia," by Dr. Prince E. Sawyer, of Sioux City, Ia.; "Functional Diagnosis of Kidney Diseases," by Dr. A. C. Stokes, of Omaha, Neb.; "Hypertrophy of the Thyroid Gland," by Dr. T. E. Potter, of St. Joseph, Mo.; "Rest in the Treatment of Select Cases of Mental Disease," by Dr. F. P. Norbury, of Jacksonville, Ill.; "Uterine Displacements," by Dr. W. O. Henry, of Omaha; "Abscess of the Rectum," by Dr. E. H. Trailkill, of Kansas City, Mo.; "Latter-day Aspects of the Pathogenesis of Cancer," by Dr. J. W. Ryan, of Coffeyville, Kans.; "Incipient Forms of Insanity and their Treatment," by Dr. John Punton, of Kansas City, Mo.; "Drainage in Acute, Diffuse Septic Peritonitis," by Dr. Van Buren Knott, of Sioux City, Ia.; "The Business Side of It," by Dr. J. R. Phelan, of Oklahoma City, Okla.; "Surgical Treatment of Postoperative Hernia," by Dr. Willett Bartlett, of St. Louis, Mo.; "Case of Choroiditis, probably due to Necrosing Ethmoiditis," by Dr. W. W. Bulette, of Pueblo, Colo.; "Diagnosis of Progressive Spastic Ataxia in its Early Stages; with report of two cases," by Dr. J. M. Dunsmore, of St. Joseph, Mo.; "Suspicious Symptoms of the Upper Abdomen: their Significance," by Dr. Jno. E. Summers, Jr., of Omaha; "Tobacco Amblyopia," by Dr. W. L. Kenney, of St. Joseph, Mo.

OBITUARY.

Dr. GEORGE F. LEICK, one of the best-known physicians of Cleveland, Ohio, and for several years head of the Department of Health, died March 31, aged forty-nine years.

Dr. CHARLES A. OLCOTT, ex-surgeon of the Fire Department, died last week in his fiftieth year at his home in Brooklyn. He was surgeon-major of the Thirteenth Regiment, and when that organization went to Montreal during Queen Victoria's jubilee he was made a member of the Queen's Own Guard.

Dr. WILLIAM BODENHAMER, the oldest resident of New Rochelle and once the family physician of Commodore Vanderbilt, died March 3 in his ninety-seventh year. He worked almost to the end in writing a contribution for a medical publication on disease of the lower bowels. He diagnosed the last illness of Commodore Vanderbilt, and he was one of the witnesses in the

will contest which followed the Commodore's death. He was also the physician of Gov. Curtin of Pennsylvania and of Commodore Garrison and other prominent men. For fifty years he had been almost a constant contributor to medical journals in America and Europe. Dr. Bodenhamer said that he owed his long life to temperate living. He was moderate in the use of liquor and tobacco, but indulged in both when he felt like it. Since he was twenty-two years old he never ate breakfast without having a little whisky toddy mixed for him.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, March 25.

THE GARCIA CENTENARY—THE PREVENTION OF CONSUMPTION—INFLUENZA AS A FASHIONABLE CAUSE OF DEATH—PHYSICAL DETERIORATION OF THE BRITISH RACE—HOSPITALS AND MEDICAL SCHOOLS.

The great event of the past week was the celebration in honor of the hundredth birthday of the true begetter of the laryngoscope, the Spanish singing master, Manuel Garcia. Medicine and music vied with each other to do honor to the man who had annexed a new province to the healing art and who had trained Jenny Lind, Christine Nilssen, Charles Santley and many other famous singers. The reception room of the great house of the Royal Medical and Chirurgical Society in Hanover Square was packed with representatives of learned bodies, laryngological societies and musical academies, who all presented addresses. The introducer of the deputation was Sir Felix Semon, himself a copious orator whose speech, although he has lived more than thirty years in London, has still a strong Teutonic twang. Of the foreign visitors most attempted to give vent to their feelings in what seemed to be meant for English. The centenarian bore it all with a staying power that would have been wonderful in a much younger man. He brightened up visibly when he was addressed in Spanish by fellow countrymen representing the King of Spain, the Spanish Academy of Medicine, and the Laryngo-Rhino-Otoiatric Society of Madrid. The Royal Society before which Garcia read the account of his invention and the observations he had made by means of it presented a short address which may have been intended as a kind of reparation for the utter indifference with which it treated both the communication and its author. The Society has bestowed its Fellowship, which is the most coveted scientific distinction in this country, on many who have done nothing nearly so worthy of recognition. The King conferred on Garcia a commandership in his Victoria Order, a decoration that enables the proud possessor to put the letters "C. V. O." after his name. The opinion was pretty generally expressed that it would have been a graceful act if the "fountain of honor" had squirted just a trifle higher and made the old man a Knight. Manuel Garcia would do more credit to the order of knighthood than it could possibly bestow on him. In the evening there was a banquet at the Hotel Cecil, attended by nearly five hundred people, among whom were all the leaders in music and many of the bigwigs of medicine. There was an inordinate amount of speechifying, and I realized the force of Sydney Smith's suggested ecclesiastical punishment of being "preached to death by wild curates." The wonderful old man sat it out, however, and did not leave till late. He attended a Homeric banquet at the German Club an evening or two afterward, where he smoked cigarettes and drank a large glass of lager beer at midnight. I am told on good authority that he is not a bit the worse for the dissipation with all its attendant excitement and fatigue. He certainly is a marvel of vitality. Although somewhat bent he moves about without difficulty; he can make himself heard in a large room, and his handwriting is firm and beautifully distinct. He is alert and vigorous in mind, very ready in apt repartee and a graceful speaker. His great discovery was made when he was fifty, and he continued to teach till he was ninety. There is no apparent reason why he should not live for many years yet, to be a standing refutation of Professor Osler's doctrine.

The National Association for the Prevention of Consumption and other Forms of Tuberculosis held its sixth annual meeting on March 23. From the Council's report it appeared that the financial position of the Association was unsatisfactory, its expenditure during 1904 having exceeded its income. A special meeting is to be held in May under the presidency of the Lord Mayor of London with the object of bringing the merits and the needs of the Association before the moneyed men of the city. It was stated that a further step toward the suppression of spitting in public places had been taken by the London County Council, in regard to the common lodging houses under its control. It was mentioned that tuberculosis in children, especially the surgical forms of the disease had engaged the attention of the Association during the past year, and a subcommittee had made recommendations urging the necessity of providing special hospitals for such cases in the country or at the seaside on the lines of open-air sanatoriums for pulmonary consumption. It was pointed out that if special hospitals were provided children could be admitted at any age, and thus it would be possible to begin treatment at an earlier stage than was now feasible, and the patients could be kept until they were cured or proved to be incurable. It was suggested that for incurable cases separate homes should be provided. The report went on to say that this country lagged far behind some other countries in its provision for such children. It was hoped that the London County Council would see their way to devoting to this purpose the mansions often standing in the parks they acquire, and inquiry was made, but for the present the matter remained in abeyance. A gratifying step in the extension of public control with regard to tuberculosis had been taken by the Sandgate Urban District Council, who were seeking power, *inter alia*, to exercise control over hospitals or sanatoria for tuberculosis to introduce notification of the disease and to regulate the milk supply. The council said that the time was evidently close at hand when provision of sanatoria, municipal and other, would be on the increase. The principles and possibilities of sanatorium treatment were as yet but ill understood in this country. Open-air treatment was only efficacious, or at any rate only powerful to cure, when undertaken in an early stage of the complaint, and there was a fear that the system itself might fall into discredit if not wisely applied. It would be the duty of the association to educate and guide public opinion and supply information, to urge that cases be carefully selected and classified and kept under prolonged treatment, and that some means be found to provide for their after-care. Some system, too, must be devised to spread information as to the initial symptoms of phthisis and the importance of really early treatment. The Chairman, Lord Derby, in moving the adoption of the report, said that during the year new sanatoriums had been opened at Newcastle, Keswick, Glasgow, Gloucester, and in West Wales. Sheffield and Sandgate were the only towns

at present which had taken steps to enforce notification of the disease. The more local authorities insisted on this measure the more the movement would gather force. He expressed the opinion that in addition to the hospital or sanatoria, there should be places of rest—he did not like to call them homes for the dying—for cases in advanced stages of the disease, or altogether beyond recovery. The motion was seconded by Dr Nathan Raw, of Liverpool, who has taken a prominent part in urging on municipal authorities the duty of providing sanatorium accommodation for the poor consumptives within the area of their jurisdiction. He referred to the fact that the principles and possibilities of sanatorium treatment were even now ill understood. Many doctors, he said, are not convinced of the value of the treatment; it is not surprising, therefore, if the general public is sceptical. Another and stronger reason for unbelief is that during the last few years unsuitable cases have been rushed into sanatoriums, with the inevitable result of failure, disappointment and wholesome condemnation of the system. The sanatorium, he urged, can be expected to confer benefits only on those patients in the early stages of the disease, who are also other suitable cases for treatment. The sanatorium alone will not stamp out consumption. County Councils and health authorities are holding their hands and the inevitable reaction has set in against sanatoriums. Dr. Raw feels sure that this will soon pass away. In the meantime he holds it to be the duty of every health authority to provide first of all a sanatorium for the treatment of early and suitable cases as a means of cure, and and also some means for the isolation of advanced cases. He concluded by saying that with a few exceptions, the respectable poor when attacked by consumption have no refuge but the workhouse. This is not creditable to England and does not compare favorably with what is being done in other parts of the civilized world. After the adoption of the report Sir William Broadbent moved a resolution to the effect that in the interest of the public health it is necessary that consumption and tuberculous disease generally in London should be dealt with in a comprehensive manner; and that this will be done most efficiently by the Metropolitan Asylums Board constituting itself the sanatorium authority for consumption in London. He said that there was in London an enormous amount of consumption and tuberculous disease. Some patients were actually paupers, and some just above that class. Many paupers suffering from tuberculous disease were in the workhouse, but most of them were in their own houses, and were a constant source of danger. Through the existence of advanced cases of consumption in the lower classes the well-to-do became afflicted; but with knowledge and better instruction in hygiene the well-to-do had no business with consumption. The consumption in the metropolis should be dealt with in a comprehensive manner; the only existing authority who could do this was the Metropolitan Asylums Board. If that body undertook to deal with consumption they would make a definite impression upon the amount of disease which existed, and they would not only save life, but promote the public health. The resolution was passed unanimously.

At a meeting of the Hunterian Society of London on March 22, Professor Clifford Allbutt, of Cambridge, introduced a debate on influenza, which in a mild form is somewhat prevalent at present. The Professor put forward some new points. For instance, he said that "influenza travels by express trains," and he cited facts to show that in the spread of epidemics towns at which through trains stopped were attacked first, while the smaller places served only by slow trains escaped for a time. Just as the Ganges was the home of cholera, so Northern China was the home of influenza, and the opening of the Trans-Siberian Railway had much facilitated the spread of the disease. "In the great epidemic of 1889 Bokhara was the point of dissemination into Europe, whence it followed three trade routes. It reached New York from England in just the time taken by the fastest steamer running at the time." Professor Allbutt stated his belief that only those cases were infectious in which the respiratory organs were implicated. He thought that occasionally the infection could be carried about by clothes for a few days. Children were not liable to the disease, and if they did catch it they soon recovered. The onset was always sudden—sometimes absolutely so. Thus a gentleman riding past the Professor's own house was stricken so suddenly with influenza that he fell off his horse. He mentioned that Sir William Broadbent had told him of a patient who drove in at one gate of a public park perfectly well and was prostrated by influenza before he reached the opposite gate. The Professor called attention to a new type of the disease, which he called continued influenza. During convalescence all special sensations were affected Thus he himself was very fond of music, but after an attack of influenza he went to a concert and could not imagine how anybody could enjoy such a noise. At the end of an hour of boredom, he came out. Yet with complete recovery his enjoyment of music came back suddenly, curiously enough together with a renewed appetite for food He believed that the misery and depression which so often followed influenza could be cut short by a plain diet of milk and vegetables. "Affectionate wives," he said, "dose their husbands with beef tea and other things supposed to strengthen, but these only delay recovery." Professor Allbutt holds that one attack of influenza confers immunity for a period of about six months against another. He also thought the tendency to suicide as a sequel to an attack of influenza was not so frequent nowadays as in the serious epidemics of the last decade. In the discussion that followed Dr. Franklin Parsons, of the Local Government Board, said that a public speaker with influenza could spread microbes into his audience for a distance of forty feet. He showed by curves that the type of the disease had changed, and instead of disappearing for long intervals was now constantly in our midst; in fact, has become endemic. A week rarely passed without several deaths from influenza being registered in London alone out of all the great centers of population included by the Registrar-General in his weekly mortality returns. It was a singular fact that although the doctors recognized influenza as an actual cause of death, they were loth at first to enter it on death certificates, probably because, in the public mind, it was regarded as so trivial a disease "that it was considered discreditable to die from it." Now, on the other hand, it was considered somewhat fashionable to die of influenza. Dr. Parsons went on to say that we were ignorant of the meteorological conditions governing the epidemics of influenza, but he thought it was pretty clear that we could not blame the weather, for epidemics had occurred in all seasons, though they were rare in the months of September, October and November. It was certainly not a "filth disease" such as enteric fever and typhus, and it was curiously infrequent where and when such diseases were prevalent.

Some figures recently published in the annual report of Major General H. G. Miles, Director of Recruiting, throw an unpleasant light on the unsatisfactory physique of the British working-classes from which our army is recruited Of the men who presented themselves for

enlistment last year, 23,658, or more than 34 per cent., were rejected after medical inspection as physically unfit. In addition to those rejected by the medical officers, over 20,000 were refused by recruiting officers in the nine months ending September 30, 1904. In many districts the rejections on account of defective teeth were very heavy. In commenting on the figures the Director of Recruiting says: "The question of medical rejections is of great importance, and requires serious consideration in view of the large number of recruits that must annually be obtained. It may be that when the new pay conditions are thoroughly understood, recruits of a higher social class and physical development may be attracted, but it is unsatisfactory that such a large number of lads should fail, for various reasons, to attain to the standard required for entrance into the army, a standard which cannot be considered exacting." To say that the standard is not exacting is to put the case very mildly. And low as the standard is, the authorities encourage the medical officers not to be too strict in their requirements. I have heard of a too conscientious examiner of recruits being reprimanded for excess of zeal, and on one occasion not many years old, a hint, which like a royal invitation was in the nature of a command, was given to all the medical officers engaged in the work, not to draw the tape too tight in measuring the chest.

The report of the Royal Committee appointed to consider the relations of hospitals and medical schools, an account of which was given in a recent letter, has already had two results, unexpected and doubtless undesired by the antivivisectionists whose agitation led to the inquiry. The treasurer of the London Hospital has just announced that since the issue of the committee's report (which strongly condemned payments to medical schools out of moneys subscribed for the hospitals) a "discretionary fund" has been opened, which is to be used, according to the discretion of the governors, either for the purposes of the hospital or for those of the school. Within a week the subscriptions to this fund have flowed in to an amount twice as great as the sum ever before applied to teaching purposes. To-day it is announced that Mr. Alfred Beit, the South African millionaire, has been moved by a perusal of the report of the committee to increase the amount of his donation to the London University Institute of Medical Sciences from $25,000 to $125,000. He expressly states that he wishes by this gift to commemorate the great kindness of his friend Dr. Jameson, now Premier of Cape Colony, and the services of several members of the Faculty of Medicine during a recent illness.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, held February 7, 1905.

The President, Joseph Fraenkel, M.D., in the Chair.

Two Cases of Dysbasia Angiosclerotica (Intermittent Claudication), with Demonstration of Calcareous Deposits in the Pedal Arteries.—Dr. J. Ramsay Hunt read this paper, and the demonstration of radiographs was by Dr. Arthur Holding. The first patient was a man, forty-nine years old. His occupation for the past thirty-two years had been that of an iceman, which necessitated long and frequent exposure of the feet to cold and wet. The patient had used alcohol and tobacco to excess for many years. He acquired syphilis in 1879. The following year he had some ulcerations on the right leg, and five years later suffered from ulceration of the palate, with perforation. In September, 1903, he had an attack of delirium tremens, for which he was treated in the alcoholic pavilion of Bellevue Hospital. Restraint was necessary, and he was bound in the usual manner by sheets attached to the wrists and ankles. The first symptoms of the present affection appeared immediately after his discharge from the hospital, and was attributed by the patient to the restraint used. He complained of stiffness in the toes and the left leg; also the ankle, and paraesthesia of the toes and edges of the feet. After walking a quarter of a mile, the prickling pain and stiffness became so distressing that he had to sit down until it wore off, which was the case after a few minutes rest. His symptoms were much worse in winter than in summer, and were especially severe on a cold day. On rising in the morning the feet and legs felt perfectly well and natural. Toward the end of the day the feet became puffed up and swollen, and presented a mottled and cyanotic hue. He complained that they felt cold most of the time. The posterior tibial artery was not palpable on either side. The dorsalis pedis was full and larger than normal. The femorals and popliteals pulsated normally on the two sides. The feet were cold, and on standing became red and swollen, with a distinct purplish tinge. Numerous venules and minute venous varicosities were present about both ankles, and along the anterior tibial region. The toe-nails on the left foot presented transverse ridges. The reflexes and sensations of the lower extremities were normal. Signs of a general arteriosclerosis were present, and the urine contained a faint trace of albumin, but no casts nor sugar. Its specific gravity was 1.017. Subsequent examination revealed an occasional faint pulsation in both posterior tibials, weaker on the left side.

The second patient presented by Dr. Hunt was a man sixty years old, who for fifteen years had been a longshoreman. For the past ten years he had worked in barrooms, where his feet had been exposed a good deal to the cold and wet. He denied lues. For the past fifteen years he had smoked from ten to fifteen cigars daily, and had used alcohol to excess. About five years ago he began to suffer from numbness, stiffness and cold sensation in the toes of the right foot, coming on about two hours after beginning work in the morning. At the end of the first year he was compelled to rest after about three hours. At the end of two years, his condition had grown worse; the paresthesia and stiffness had extended as high as the ankle, and rest was necessary after two hours work. After resting, and in the morning on arising, all his symptoms had disappeared. The symptoms in the left foot gradually grew worse, and six months ago similar symptoms appeared in the right foot, beginning in the toes. Both feet assumed a mottled appearance on standing, but did not swell. A pulsation of the femorals, popliteals and posterior tibials could be felt on both sides, while the pulsation of the dorsalis pedis was entirely absent on both sides, although the artery could be felt as a fine rounded cord. The reflexes and sensations of the lower extremities were normal. There were well-marked signs of a generalized arteriosclerosis. The urine had a specific gravity of 1.023; it contained a trace of albumin, no sugar. The symptoms presented by the cases shown were to be ascribed to an arteriosclerosis of the vessels of the leg and foot—the so-called dysbasia

angiosclerotica (intermittent claudication of Charcot). The X-ray photographs demonstrated by Dr. Holding showed very exquisitely deposits of lime in the posterior and anterior tibial arteries and the dorsalis pedis, marking out very definitely the course of the vessels. As might be inferred from the general evidences of arteriosclerosis in both cases, the pathological process in the pedal arteries was the usual arteriosclerosis of Gull and Sutton, with deposits of lime in the media. These cases are supposed to be less amenable to treatment than the endarteritis forms; hence this method of demonstration might have a certain prognostic value. Both cases had shown a very moderate response to treatment.

Dr. S. Sachs called attention to the similarity of the lesions met with in this condition to those of erythromelalgia.

A Case of Probable Infectious Myelitis of the Cervical Region, Following a Compound Fracture of the Jaw.—This also was presented by Dr. Hunt. The patient was a man thirty-six years old, a painter by occupation, who, until the onset of the present trouble, had enjoyed excellent health. He had never shown any symptoms of lead poisoning. On December 7, 1904, he fell on the street and fractured his lower jaw in two places. The fracture was a compound one, and the wound, which was on the inside of the mouth, bled for several hours. Three weeks later he had rigors at night, on one occasion followed by profuse perspiration. On January 5, 1905, after a heavy slumber, he awoke with severe pain in both arms, which were also very weak, so that he could hardly lift them. The weakness was chiefly in the muscles of the shoulder, especially on the left side. The pains continued all day with great severity, sharp and lancinating in character, and shooting through the whole length of the arms, although more severe in the shoulders. The next morning the pains had ceased entirely in the right arm, and the power of the extremity had returned. He was unable, however, to elevate his left arm, and the severe pains still continued, especially in the region of the left shoulder. There were no vesical symptoms. For several nights following the onset of the paralysis he had chills of moderate severity. The patient was first seen by Dr. Hunt on January 20, 1905, two weeks after the onset of the symptoms. He still complained of sharp, shooting pains in the region of the left shoulder, and the deltoid muscle was somewhat tender to deep pressure. It might be added, however, that on compressing the muscle bundles of the deltoid between the fingers, the same pain and tenderness was elicited as on deep pressure. The nerve plexus above the clavicle and in the axilla and along the inner side of the arm was absolutely free from any tenderness. The left arm was the seat of a slight general atrophy which was very marked in the deltoid muscle. All movements of the left arm and shoulder could be carried out with practically normal power, excepting adduction of the arm. On attempting adduction some of the posterior bundles of the deltoid were felt to contract, but little or no movement of the extremity was produced. All the arm-jerks were present, and were equal on the two sides. On testing the sensibility it was found that the tactile, pain and temperature senses were retained over both upper extremities, and that the deep sensibility was also normal. A more careful sensory test, however, showed that the sensation was relatively diminished for pain, temperature and touch along the outer side of the arm from the shoulder to the wrist, corresponding very closely to the recognized sensory distribution of the fifth cervical segment of the cord. On the right arm a similar relative obtunding of sensation was also present, but less marked and not so extensive, being practically limited to the region of the deltoid. The gross motor power and tendon reflexes of the lower extremities were normal. The Babinski phenomenon was absent. The deltoid muscle failed to respond at Erb's point to the galvanic or faradic current, although good contractions were produced in the biceps and the supinator longus. The direct faradic current produced a sluggish response in the posterior portion of the deltoid; no response in the anterior half. By the direct galvanic current a slow, vermicular response was elicited, with reversal of the poles. The urine contained some albumin and hyaline casts. A blood-count showed 4,112,000 red blood corpuscles; 10,000 white cells, and 75 per cent. of hemoglobin. The erethrocytes were normal; no granular basophilia. The differential count was as follows: polymorphonuclears, 70.6 per cent.; lymphocytes, 10.2 per cent.; large mononuclears, 18.8 per cent.; eosinophiles, 0; mast cells, 0.4 per cent.

On February 1, 1905, the patient still complained of a dull aching, with occasional sharp, shooting pains in the left shoulder. The moderate tenderness in this region still persisted. The gross motor power of the deltoid had greatly improved, so that the arm might now be elevated above the head. This occurred chiefly through the medium of the posterior half of the deltoid muscle, the anterior portion remaining entirely relaxed and flaccid. The slight sensory changes still persisted. There was no Babinski phenomenon. A small piece of dead bone had been removed from the inside of the mouth. The breath and excretions from the mouth were very fetid. The interesting features of this case, Dr. Hunt said, were those of localization and etiology. Considering the patient's previous good health, and the absence of any other demonstrable cause, it was natural to refer the symptoms to the suppuration and the carious process in the lower jaw, more especially as mild symptoms of sepsis directly preceded and followed the onset. While the persistent pains and apparent tenderness over the left deltoid might suggest a neuritis of the circumflex nerve, it might be emphasized that the paralysis of the deltoid was incomplete, and evidences of objective sensory changes limited to the circumflex were absent. The speaker also emphasized the absence of tenderness or other evidences of inflammation in the plexuses and cellular structures of the neck. On the other hand, the initial paralysis and severe pains, symmetrical and bilateral in distribution, the rather sudden recovery of the right arm and the more gradual recovery in the left; the unequal distribution of the paralysis in the left deltoid, and the gradual improvement which this paralysis had undergone; the relative diminution of sensation on both sides in an area corresponding very closely to that of the fifth cervical segment, all pointed strongly to a central cord lesion. The nature of this case could only be inferred. A poliomyelitis or a myelitis of infectious origin naturally suggested themselves.

Dr. Charles L. Dana said he had seen Dr. Hunt's patient some days ago, when there was still some paralysis of the left arm. The condition could best

be explained on the theory of a thrombosis, plugging one of the central arteries, and affecting the left anterior horn, about the region of the fifth cervical segment.

Dr. Fraenkel said there were a number of cases reported in literature where septic conditions, particularly that known as angina Ludovici—an acute suppurative condition of the connective tissues of the neck—had given rise to a septic neuritis. The speaker said he saw such a case in consultation about three years ago. The case was one of a septic throat condition, and eight or ten days later, after the acute symptoms had subsided, there were evidences of a bilateral brachial neuritis. It began with severe pain, in that way differing from the case shown by Dr. Hunt.

Address of the Retiring President, Dr. Pearce Bailey.—The speaker stated that while the membership of the Society had been materially enlarged during the past year, notably by younger men, the new members had not shown the active participation in the proceedings which was absolutely essential for the Society's continued prosperity. Many interesting cases had been shown during the year, and the general discussions had brought out large audiences, and had been fruitful in valuable information. While individual clinical cases and general discussions perfected the art of the clinician, they did not give neurology all that neurology had a right to expect from as representative a body as the New York Neurological Society. For the science to be advanced, more fundamental contributions were essential. It was commonly said, and with much truth, that neurology was living to-day on its past achievements. So much the more necessary was it to try to give it new life, to start it again on that progress which, only a few years ago, made it the most brilliant branch of medicine.

Address of the President-Elect, Dr. Joseph Fraenkel.—The speaker stated that while neurology had a glorious past, its future, viewed with the bias of the sentiment prevailing at present, appeared discouraging. A pessimistic attitude had crept in; the transactions of the meetings of neurologists seemed to lack the animation and enthusiasm of former days. Why this was so he did not know; it had happened because it had to—it was a phase of evolution. Dr. Fraenkel said that personally he did not believe that the present augured ill for the future. There was a wealth of fundamental questions awaiting investigation. New methods had been elaborated that promised valuable aid. Chemopathology, which seemed especially adapted for the elucidation of some neurological questions, with its promise of better therapeutics, was well established. The physiology of the ductless glands was closely allied to neurological themes, and deserved particular attention. All neurologists were thoroughly dissatisfied with our conception and interpretation of the so-called functional conditions. It was encouraging to note a decidedly rational spirit in the newer literature on the subject. The relation of the nervous system to the pathology of the vegetative functions was a subject which the speaker believed to be of fundamental importance to clinical neurology and psychiatry. The subject had not been lacking in votaries, but had proven refractory and unyielding. A good deal of preparatory work had been done for the better understanding of the subject. So-called visceral or vegetative phenomena accompanied more or less prominently organic disease of the nervous system, and constituted the chief physiognomy of all functional states and functional symptom-complexes. Trophic, vasomotor and secretory disturbances of the skin, changes in the trophism of joints and viscera, disturbances of the physiologic rhythm of the vaso- and visceromotor innervation, perversions of visceral sensation, were often seen at the bedside, and were not sufficiently appreciated. The visceral and vegetative symptoms of tabes and hysteria were good illustrations of familiar types. The innervation of the ductless glands was manifestly a matter of importance, and the histology of the blood-vessels of the brain and their innervation were morphological questions of broad application to physiology and pathology. Phenomena of disordered trophic influence were not uncommonly encountered by the neurologists, and very little was known about most of them. The palmar and plantar *mal perforant* of tabes, the cutaneous ulcerations of syringomyelia, the decubital ulcers observed in the course of organic disease of the cord or brain, the hysterical skin eruptions, the glossy skin, scleroderma, morphœa, etc., were hardly understood. Atrophy of the hair of the limbs in tabetics, and hypertrichiasis in cases of poliomyelitis were frequently seen. It was interesting to observe that in cases of disease of the anterior horns, when the disease was limited to the anterior horn cells, as in amytrophic lateral sclerosis, for instance, this change in the growth of the hair did not take place. Atrophy of muscles severed from their connection with the peripheral nerves was frequently observed. Atrophy of visceral muscles under similar conditions was doubted. The trophic changes of the joints in tabes and syringomyelia, and the nature of arthritis deformans were still mysteries. The pituitary body was generally believed to exert trophic influence upon some parts of the skeleton. A large number of vasomotor disturbances were still puzzling problems. The general vasomotor ataxias observed so frequently in the course of Graves' disease, and the climacteric neuroses, were, on clinical grounds, referred to perverted function of the thyroid glands or of the ovaries, respectively. Angioneurotic edema was believed by many to be explained on the basis of a toxemia. The question of erythromelalgia was still *sub judice*. Sachs' and Wiener's findings of disease of the blood-vessels and peripheral nerves had been frequently corroborated. The condition was in danger of losing its clinical identity, and of being classed with the arterial diseases of the extremities (angina pectoris of the foot, intermittent claudication) For the explanation of the spasmodic disturbances of the respiratory function, asthma nervosum, tachypnea, dyspnea hysterica, little definite pathologic information was at hand. The bradycardia of direct and indirect vagal lesions was frequently described. According to Oppenheim, neuritis of the vagus was indicated by acceleration, rarely by slowing of the heart beat. The vast variety of symptoms referable to disordered innervation of motion, sensation and secretion of the gastro-intestinal tract were well known and often very perplexing. Cases of cord lesions were not infrequently met with which began with visceral, particularly gastro-intestinal symptoms, and which were often treated for a long time under this mistaken diagnosis. In a large number of cases of lead colic the celiac nerves and ganglia were found evidently diseased. Changes in the constitution of the urine were frequently observed in

nervous diseases. Albuminuria was often a symptom of a pontine lesion, while glycosuria was frequently associated with disease of the posterior fossa. The symptomatology of disordered genital functions was also beginning to be studied along the lines suggested in Dr. Fraenkel's paper.

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.[1]

Tenth Regular Meeting, held February 15, 1905.

The President, S. J. Meltzer, M.D., in the Chair.

Members Present.—Atkinson, Auer, Burton-Opitz, Dunham, Ewing, Flexner, Gies, Jackson, Lee, Levene, Levin, Mandel, Meltzer, Noguchi, Norris, Oertel, Opie, Park, Richards, Sweet, Wadsworth, Wallace, Wolf, Yatsu.

Members Elected.—George W. Crile, Haven Emerson, Cyrus W. Field, Hideyo Noguchi, H. C. Sherman, J. Edwin Sweet, Victor C. Vaughan.

Officers Elected.—President, Edmund B. Wilson; Vice-President, Edward K. Dunham; Librarian, Graham Lusk; Treasurer, Gary N. Calkins; Secretary, William J. Gies.

ABSTRACTS OF REPORTS OF ORIGINAL INVESTIGATIONS.

Degrees of Susceptibility to Diphtheria Toxin among Guinea-Pigs. Transmission from Parents to Offspring.—by Theobald Smith. (Presented by William H. Park.) Dr. Smith called attention to the usefulness of the antitoxin unit furnished by the Institute for Experimental Therapy under the direction of Professor Ehrlich in the routine testing of the strength of diphtheria antitoxin. The one uncertain element is the relative resistance of the guinea-pigs to diphtheria toxin. In the course of the past nine years the writer has given considerable personal attention to this subject, and found that different dealers furnished guinea-pigs of slightly different susceptibility. This difference was attributed to environment and care. The animals bred under the writer's supervision generally showed maximum resistance. Irregularities in the routine tests during the past year led the writer to look up the genealogy of the pigs used and he found that the different degrees of resistance belonged to certain families or litters and were constant for those families. Thus one mother gave birth to young which did not react to what was the usual fatal dose. Four successive litters possessed the same resistance. As each pig could be tested but once the precise degree of resistance could not be measured, but it appeared probable that this family could stand forty per cent. more toxin when mixed with the antitoxic unit than those of average susceptibility. Other mothers were traced whose offspring possessed less resistance than the ones described but could still neutralize 20 per cent. more toxin when mixed with the antitoxic unit than the average.

It would seem from these observations that different degrees of susceptibility to toxin are to be found among guinea-pigs, and that the special degree possessed by any one is not to be attributed to individual variation but to a family trait or character. The resistance in the cases cited could not be attributed to any preliminary treatment with toxins and antitoxins.

Experiments are now under way to determine the part played by the male in the transmission of toxin resistance. In the case of the most resistant family, the four litters were the offspring of two males.

The Protective Action of Venom Upon Blood Corpuscles, with Demonstrations.—By Hideyo Noguchi. (Presented by Simon Flexner.) That concentrated solutions of venom fail to destroy and tend to preserve blood corpuscles was noted by Mitchell and Stewart. Among the recent writers who have paid especial attention to the interpretation of this phenomenon are Kyes and Sachs. They ascribe it to deviation of the hemolytic complement through the excess of venom amboceptors. The study which forms the basis of this brief communication shows the hypothesis of Kyes and Sachs to be untenable, since it could be demonstrated that (1) the protective action fails to occur with venom in which, through heating to from 95° to 100° C., the hemolytic principle has been preserved, but certain other constituents have been coagulated, and (2) the action extends to protection of the corpuscles from laking by water, ether, saponin, etc. The conclusion which has been reached by the author is that venom unites with the globulins and especially with the hemoglobin of the red corpuscles, yielding a water-insoluble compound to which the protection is due. Various substances, but only salts, acids and alkalis, restore the hemolyzability of the corpuscles by dissolving the venom-hemoglobin compound. The permeability of the corpuscles is not markedly altered.

The Results of Attempts to Cultivate Trypanosomes from Frogs. A Preliminary Report.—By Joseph Lewis and Herbert U. Williams. (Presented by Augustus B. Wadsworth.) During the year 1904 an effort was made in the pathological laboratory of the University of Buffalo to make studies on hematozoa in the lower animals. In a considerable number of normal cats, dogs, rabbits and guinea-pigs no hematozoa were found. The other examinations were as follows: 51 English sparrows (*Passer domesticus*), half in the winter, half in the spring, all negative; 27 mudpuppies (*Necturus maculatus*) in March, all negative; 40 toads in the summer, all negative. In 140 frogs from the Niagara River, there occurred the following infections; 14 with *Trypanosoma*, 5 with *Drepanidium*, 1 with *Filaria*. *Drepanidium* was found both in the summer and fall. The infections with *Trypanosoma* were distributed as follows:

In July of 15 frogs, 2 showed trypanosomes.

In August of 25 frogs, 10 showed trypanosomes.

In September of 14 frogs, 2 showed trypanosomes.

From October to December of 85 frogs, 0 showed trypanosomes.

In one case *Trypanosoma* and *Drepanidium* occurred in the same blood. The trypanosomes had the usual characters of *Trypanosoma rotatorium* (*ranarum*). They were in no case numerous; two were rarely seen in one low-power field. The frogs appeared healthy. Eight attempts to inoculate normal frogs by way of the peritoneum with the blood of infected frogs gave negative results.

Attempts at Cultivation. The blood of frogs and toads was taken to make blood-agar (used by Novy and MacNeal for the cultivation of trypanosomes). The blood was first examined carefully to see that it was free from parasites. The animal was etherized and placed in $HgCl_2$ solution 1 to 1,000 for fifteen minutes, rinsed in distilled water, opened with all precautions, the blood from the heart taken with a sterile pipette, and mixed rapidly with the water of condensation on slanted agar tubes (made with meat extract and peptone, and slightly alkaline to litmus). Two or three drops of blood were used for each tube. The tubes were

[1] Proceedings reported by the Secretary, William J. Gies, Ph.D., of New York. The authors of the reports have written the abstracts. The Secretary has made a few abbreviations.

sealed with rubber stoppers and allowed to stand five to ten days so that contaminations with bacteria might be detected.

(1) The blood of frogs infected with *Trypanosoma rotatorium*, collected in the same manner, was mixed with that in blood-agar tubes prepared and tested as just mentioned. The tubes were kept at the temperature of the room. Cultures made from two infected frogs showed, after two weeks, growths of flagellate protozoa (both on toad's blood-agar and frog's blood-agar). The organisms were of a very long oval form, the bodies of the largest being 2 μ x 18 μ. There was a single flagellum, which was often nearly as long as the body. Only the largest forms showed a trace of an undulating membrane, which never approached the development of this structure in *Trypanosoma rotatorium*, and which did not appear in stained preparations. Motility was not very pronounced. Numerous small forms were seen evidently representing various developmental stages. In preparations stained according to Romanowsky a blepharoplast (micronucleus, centrosome) was seen at the base of the flagellum and near the *anterior* end. The nucleus appeared to be represented by numerous chromatin granules in the posterior end. It may be noted that Smedly (*Journal of Hygiene*, January, 1905) found the centrosome at the anterior end in the cultural forms of the rat trypanosome. Numerous observers have seen trypanosomes lacking the undulating membrane under artificial conditions. The growth in the tubes was never luxuriant. Arrangement in rosettes was not seen. One generation only of subcultures grew. All the cultures soon died. A single attempt to inoculate a normal frog gave a negative result. These experiments were interrupted, as both the authors went out of town.

(2) As is mentioned below, the blood of frogs infected with *Drepanidium* was added to frog's blood-agar tubes to see if *Drepanidium* could be made to live or undergo further development. Tubes thus inoculated, in one case, showed trypanosomes in about ten days. For the moment it appeared as though trypanosomes had developed from *Drepanidium*. Having some of the same blood-agar to which no *Drepanidium* blood had been added, this was examined again and found to contain the same trypanosomes. They must of course have been derived from the frog from which the blood-agar was made. The frog's blood was examined for parasites before using it to make the medium and just before inoculating it, so that trypanosomes must have been present in numbers too small to show in several large cover-glass preparations, or they existed in some developmental stage not recognized. Novy and MacNeal have also secured cultures of trypanosomes from birds, where none were found by direct examination of the blood with the microscope.

In some preparations from the blood-agar tubes as many as four trypanosomes appeared in one field (Zeiss D.D., No. 3 ocular), and there can hardly be any doubt of their having multiplied. The motion of the trypanosomes was active and characteristic. They were much smaller than *Trypanosoma rotatorium* with rare exceptions, the body being usually about 3 μ x 16 μ. The flagellum was hardly half as long as the body. On the small forms the undulating membrane was not distinct, but the flagellum was plainly marked. Large forms similar to *Trypanosoma rotatorium*, except that the flagellum was lacking, occurred but were rare. The nucleus and blepharoplast were placed as in *Trypanosoma rotatorium* as far as could be determined, but the amount of material was so small that satisfactory stained preparations could not be secured.

With trypanosomes there were associated spindle-shaped or crescentic bodies, about 12 μ in length, looking much like the crescents of æstivo-autumnal malaria except for lack of pigment. These bodies contained several (usually four) shining chromatin granules symmetrically placed in the midddle. Motility was doubtful and in any case slight. Flagella were not seen. The crescentic forms were probably some developmental stage. The crescentic bodies were observed for eight weeks. Motile trypanosomes were observed for five weeks. No growth occurred in subcultures. Two frogs were inoculated by way of the peritoneum from tubes containing the crescentic bodies, with negative results.

(3) Attempts to produce development of *Drepanidium* were made from three frogs infected with this parasite, both on frog's and toad's blood-agar. The results were negative, although motile *Drepanidia* were discovered after ten days, and the parasites remained for weeks apparently unaltered within the blood-corpuscles.

Conclusions.—Trypanosomes from the frog may be cultivated on blood-agar, but, in the authors' experience, with considerable difficulty. From a frog infected with *Trypanosoma rotatorium* a flagellate organism was cultivated, showing important points of difference from *Trypanosoma rotatorium*. It is possible that, owing to the technical difficulties of the experiment, some other organism may have found its way into the tubes. This is improbable.

Undoubted trypanosomes developed in blood-agar prepared from a frog whose blood, during life, showed no trypanosomes. They resembled *Trypanosoma rotatorium*, but were usually much smaller. As this blood-culture medium was inoculated with blood from another source containing *Drepanidium*, it nearly led to the conclusion that *Trypanosoma* might develop from *Drepanidium*. We have here an illustration of the ease with which mistakes may occur in the cultivation of hematozoa which are suspected of passing through cycles. Such a possibility had been pointed out in advance by Novy and MacNeal before this Society (October, 1904).

There was no evidence from our experiments to show that development of *Drepanidium* can occur on blood-agar.

It is unlikely that material with which further studies may be made can be secured before next summer. As trypanosomes are now exciting so much interest and are being so widely studied, the authors deemed it best to report their results, although the work is incomplete.

Experimental Measles.—By Ludwig Hektoen (Presented by Eugene L. Opie). The search for the cause of an infectious disease like measles becomes greatly simplified when we learn how to secure the unknown "virus" in relatively pure form unmixed with common microbes. Various methods may now be applied to the investigation of the virus. The transmission of measles from mother to fetus would seem to point to the presence of the cause of the disease in the blood. In the twenty cases of fetal measles collected by Ballantyne, it seemed that the infection of mother and fetus must have been simultaneous because the eruption in both corresponded in character. In order to learn something further as to the presence in the blood of the cause of measles, inoculations of human beings would seem to be necessary because, so far as we now know, this disease is probably not communicable to animals. Grünbaum's experiments with measles in the chimpanzee appear to have given negative results.

Critical review of the literature shows that almost without exception the recorded experiments in the

inoculation of measles, for which positive results have been claimed, are without real significance. The claims that the experiments of Home, of Wachsel, of Speranza, of Katona, of McGirr, of Bufalini, gave definitely positive results do not stand close scrutiny in the light of the evidence at hand. In many instances the rubeolous nature of the sickness, sometimes very mild, following the inoculation and regarded by the experimenters as measles, is not at all securely established, and in practically all cases the possibility of natural infection has not been excluded. These experiments, practically all of which were undertaken with the idea of producing a modified form of the disease, consequently permit no conclusion as to the infectiousness of the blood or other substances in measles. If we accept Mayr's results as they are given by him, it may be concluded that in measles, nasal mucous and cutaneous scrapings (containing blood, epithelial débris, and tissue juices) may contain the cause of measles at or near the height of the eruption.

In the following experiments the author tried to determine whether or not, in measles at the height of the attack, the blood contains the cause of the disease. In these experiments special care was taken to exclude natural infection.

1. The blood injected was taken from a boy of nine years who, in the later stages of desquamation after an uncomplicated attack of scarlet fever, developed a rather mild but typical attack of measles. The first symptoms of measles appeared after he had been free from fever for about two weeks. There was headache, coryza, cough, running of the eyes, and mild febrile symptoms. Three days later a papular eruption was noted, and on the fourth day a typical rubeolous rash was present that soon began to fade and was followed by typical branny desquamation.

On the fourth day 4 c.c. of blood were withdrawn from the vein at the right elbow after carefully scrubbing the skin with soap and water followed with alcohol. Two flasks with ascites broth 50 c.c. (peptone broth two parts, ascitic fluid heated to 55° C. for forty-five minutes one part) were inoculated[1] at once with 1 and 3 c.c. of blood respectively and placed in the incubator at 37° C. for twenty-four hours. At the end of this time both flasks appeared sterile, the corpuscles having settled, the supernatant fluid being clear. Subcultures made at this time upon ascites agar, glycerin agar and Löffler's serum and kept under ærobic and anærobic conditions remained sterile; and the contents of the flask of ascites-broth containing 1 c.c. of blood remained permanently sterile.

Four c.c. of the flask of 50 c.c. of ascites-broth mixed with 3 c.c. of blood and kept in the incubator at 36° C. for twenty-four hours were injected under the skin of the chest of a healthy medical student twenty-four years old, just finishing desquamation after an uncomplicated attack of scarlet fever, and who readily gave his consent to the experiment. This man was not in the same hospital as the boy furnishing the blood for injection, but had been for twenty-six days in a different institution, at that time as well as before and afterward entirely free from measles.[2] So far as could be learned, and careful inquiry was made, the man injected had not had any disease at all resembling measles except scarlet fever. At no time did any local symptoms appear at the site of the injection. On the thirteenth day after injection the temperature was 101° F.; in the evening it rose to 103° F. At nine o'clock the following morning he was given a warm bath and immediately afterward a red, papular, blotchy eruption broke out on the forehead and spread quite rapidly to the face, neck and chest. Dr. James B. Herrick, who saw him at this time, felt no hesitancy in making the diagnosis of measles. By two o'clock an unmistakably typical full blown, rubeolous rash was present over the greater part of the body. The temperature remained above normal for two days, when it fell to normal about the same time that the eruption began to fade. An uneventful recovery followed without any complications whatsoever, the desquamation being branny. There was during the entire illness freedom from respiratory symptoms of all kinds. Even during the pre-eruptive period there were no special local symptoms (morbilli sine catarrho). The patient's subjective condition was not much changed if at all at any time during his illness. The appetite continued unimpaired.

2. In this case the blood was furnished by a well-developed Irish servant girl, twenty-one years old, who passed through an uncomplicated attack of typical measles. About thirty hours after the earliest appearance of the rash, which still was coming out upon the extremities, 10 c.c of blood were withdrawn from a vein at the elbow and distributed equally among four flasks, each containing 50 c.c. of broth and 25 c.c. of ascites fluid. These flasks all remained perfectly sterile so far as bacteria demonstrable by the usual methods are concerned.

After twenty-four hours at 37° C., 5 c.c. of the mixture of blood in ascites-broth were injected subcutaneously in the back of M., aged twenty-eight years, who had not had measles so far as he knew and who readily gave his consent to the experiment. This patient was also recovering from a mild attack of scarlet fever and had been at time of inoculation for twenty-four days the sole occupant of the isolation room of a general hospital in which at that time there were no other cases of measles. There were no local changes at the site of the injection. The temperature and general condition remanied normal until the evening of the eleventh day, when the temperature rose to 99.8° F., and the next day a mild conjunctivitis already suspected a day or so previously became definitely apparent. On the thirteenth day there was some cough, the tonsils were bright red, and there was an increased amount of mucus in the throat. In the afternoon the temperature, which was rising, reached 103° F. During the next night a typical rubeolous eruption came out, the first spots being noticed on the nose and then on the forehead, face, scalp, chest, back and abdomen. The rash consisted of pink macules and papules which disappeared readily on pressure, being largest and brightest red over the face. The forehead was quite uniformly red. The patient was not seriously ill; there was some loss of appetite, but he slept well during the night, having been somewhat restless the preceding night. Recovery was prompt.

Cultures of the blood on the thirteenth day (1 c.c. of blood in each of three flasks each containing 50 c.c. of broth and 25 c.c. of ascites fluid) remained permanently sterile.

Conclusions.—The results of these two experiments permit the conclusion that the virus of measles is present in the blood of patients with typical measles sometime at least during the first thirty hours of the eruption; furthermore, that the virus retains its virulence

1 In experiments 1 and 2 a few drops of blood were allowed to run out before inoculating the ascites-broth which was done without the needle of the syringe touching the culture fluid.

2 In both experiments the injections were made by me. At the time the injections were made I had not seen any cases of measles within twenty-four hours. When in the measles ward the usual precautions were used and of course similar precautions were followed when visiting the subjects of the experiments—clean long gowns, caps, clean hands, etc. Freshly autoclaved syringes were used for the injections.

for at least twenty-four hours when such blood is inoculated into ascites-broth and kept at 37° C. This demonstration shows that it is not difficult to obtain the virus of measles unmixed with other microbes and in such form that it may be studied by various methods.

The Formation of the Centrosome in Enucleated Egg-Fragments.—By Naohidé Yatsu. To test whether the centrosome is a permanent cell-organ or not, E. B. Wilson (1901) made an experiment on the sea-urchin egg by treating, with a salt solution, enucleated egg-fragments obtained by shaking. He observed that asters containing centriole and capable of division were produced in the enucleated fragments. He, therefore, came to the conclusion that at least some of the centrioles in the asters thus formed must have arisen *de novo*. Some writers criticised his results, saying that the formation of the centrioles in the enucleated fragments observed by him might have been due to the shaking-out of the nuclear fluid into the cytoplasm. Wilson, therefore, suggested to the author to repeat his experiment in a somewhat different manner; instead of shaking, to cut eggs singly and to treat the nucleated and enucleated pieces separately. The author tried this experiment on the egg of *Cerebratulus* in the summers of 1903 and 1904. Strict precautions were taken to prevent accidental fertilization, everything used for the experiment being sterilized. Individual eggs were cut into nucleated (*i.e.*, containing the first maturation mitotic figure) and enucleated fragments. The latter were kept for an hour in a solution of calcium chlorid. Then they were transferred to sterilized sea-water. Asters were produced in almost all enucleated fragments thus treated. What is more striking, all the asters had centrioles which were identical with those found in the whole eggs subjected to the same treatment. The nucleated half was stained and shown to have had two original centrosomes intact. From these experiments no other conclusion can be drawn than that the centrosome, with centriole, of the enucleated fragment was formed *de novo*.

Structure of Vaccine Bodies in Isolated Cells, with Demonstrations.—By James Ewing. One of the few points on which all observers of vaccine bodies are agreed is that these structures are extremely susceptible to artificial changes. The author has for some years endeavored to find a method of examination of these bodies by which artificial changes could be avoided; and this object seems to have been accomplished by the very simple procedure of making Klatsch preparations of corneal vaccine ulcers.

A glass slide is cleaned with soap and water, and thoroughly heated in a Bunsen flame. It is then found to be unusually cohesive. The cornea of an anesthetized rat or rabbit, presenting a vaccine ulcer at any stage, is exposed by holding back the eyelids and protruding the eyeball. The cooled slide is then lightly applied to the ulcer and quickly withdrawn without lateral motion. The slide carries away with it an impression of the ulcer in the form of isolated cells or groups of cells loosened by edema. In this way ten to twenty impressions may be taken in serial order, and the minute ulcer may be completely excavated without sacrificing the animal. The isolated cells dry instantly and may be fixed by gentle heat, and afterward by methyl alcohol, and then stained by various methods, preferably by Nocht-Romanowsky for ten minutes. The vaccine bodies are then presented with a clearness equal to that of the malarial parasites in blood spreads.

In Klatsch preparations stained by Nocht's method the following features of the vaccine bodies appear to be demonstrated. The vaccine body is a portion of the cytoreticulum, its reticular structures being continuous on the one hand with the cytoreticulum and on the other usually with the nuclear reticulum. The clear zone surrounding the vaccine body in sections of tissue is an artifact. The reticulum of the vaccine body takes the chromatin stain indicating that it contains chromatin; and many of the bodies are so intimately connected with the nucleus, the meshes of one passing insensibly into the other, as to force the conclusion that these particular bodies have arisen by recent extrusion of nuclear chromatin into the cytoreticulum. Other bodies are disconnected from the nucleus and these may have arisen partly from the chromatin of the cytoplasm, a possibility which is furnished by Hertwig's theory of the constitution of cell protoplasm. Many of the vaccine bodies closely resemble the chromidial substance described by Hertwig in some lower animal cells. In the meshes of the reticulum the author has been unable to demonstrate any organized structure, but the meshes sometimes present nodal points of an underlying reticulum. In the fresh condition the meshes contain homogeneous refractive globules which disappear on drying.

Two series of changes may be followed in the vaccine bodies in Klatsch preparations. Many of them develop basic staining areas with loss of the central reticulum, and this process may continue until the entire body is transformed into a homogeneous globule resembling mucus or colloid. In others the reticulum breaks up into granules with or without the development of a central basic mass.

The author has been unable at any stage or in any derivative of the vaccine body to detect the slightest definite trace of a protozoon. Yet there are several hypotheses on which it may be claimed that this cytoplasmic and nuclear material harbors an organized virus of vaccinia. (1) The meshes of the reticulum may contain a submicroscopic organism or one which disappears on drying. (2) The vaccine body may represent a fusion of the protoplasm of the host cell with that of the parasite, forming a *mycoplasm*, as is claimed to exist in some diseases of plants (wheat-rust). (3) Some other method of fixation and staining of isolated cells may succeed in demonstrating in the meshes of the vaccine body an organized structure. In any event it must be claimed that if the vaccine body contains a parasite it is one quite different from any recognized type of protozoon or from any interpretation which has yet been placed upon the structure of vaccine bodies in sections of tissue.

Besides vaccine bodies there are other structures resembling protozoa to be seen in Klatsch preparations. One of these is ½ to 1½ μ in diameter, ring-shaped and containing a chromatin granule. Myriads of these bodies are sometimes visible on the flat corneal cells. They appear to be peculiar cell granules and are present in normal animals.

On the Tetanic Element in Bile.—By S. J. Meltzer and W. Salant. The toxic effects of bile are manifold and have been the subject of numerous investigations. The authors referred only to the general effects: coma and convulsions. Of the early investigators of the effects of injection of bile into animals, some observed only coma, others convulsions and still others stated that they observed both. The last work on this subject, the work which is now frequently quoted, was done by Rywosch about fourteen years ago. Rywosch claims that coma is the only effect of the two which the injection of bile or bile salts produces.

In their extensive series of experiments on frogs the authors established the fact that the injection of bile can

produce coma as well as tetanus. Coma is the frequent and the more reliable result. By a certain device, however, they were able to demonstrate the presence of the tetanic element even in bile which infallibly produced coma; it was by the addition of a subminimum dose of strychnine. A frog of medium size will not respond, even with the slightest hyperesthesia, to an injection of one hundredth of a milligram of strychnine. When such a small dose, however, is injected into a frog, which has received a certain quantity of bile, the animal reacts sooner or later, with a distinct tetanus. The effective dose of bile varies with the animal from which it is obtained. For instance, of ox bile hardly more than 0.3 c.c. need be used, otherwise the coma will completely mask the tetanic element. Rabbit's bile, on the other hand, may be given, sometimes even in doses of 2 or 3 c.c., without suppressing any of the tetanic features. The setting in of complete coma usually masks the tetanic element as already stated. A close observation however will reveal in many cases some distinct differences between the coma of animals which received a subminimum dose of strychnine and that of animals which had not received any strychnine.

The bile of rabbits, which thus far has been more extensively studied than that of other animals, produced in many instances distinctly convulsive effects even without the addition of strychnine. From an analysis of their observations to the present time the authors feel justified in making the following statements: The toxic effect of bile from normal rabbits shows an individual variation; the effect of the bile from some of the animals is predominantly coma and from others tetanus. Heating the bile seems to reduce the stupefying, paralyzing effect and to favor the appearance of the tetanic element. In the bile of nephrectomized rabbits the tetanic element was distinctly more pronounced than in the bile of normal rabbits.

The bearing which these observations might have upon the understanding of the complex symptoms of cholemia and uremia was not discussed.

A Preliminary Communication on the Pharmacology of Thorium.—By E. D. Brown and Torald Sollmann (Presented by William J. Gies). Thorium nitrate precipitates proteids and is intensely astringent. Its intravenous injection is promptly fatal by embolism. Applied subcutaneously, it causes local necrosis. Administered by the stomach, even large doses have no appreciable effect.

Solutions in sodium citrate were found to be non-precipitant and non-astringent. As much as 1 gm. of thorium nitrate, per kilogram of dog, injected subcutaneously and intravenously, in citrate solution, had little acute action; however, the animals appeared depressed and became emaciated. The post mortem examination, made after several weeks, showed extensive and widespread calcification of tissues. Thorium could not be demonstrated in the calcified areas.

A method for the quantitative estimation of thorium was elaborated; this gave satisfactory results with urine to which known quantities were added. But in actual experiments on animals it was found inaccurate, a large proportion of the injected thorium escaping detection. However, it was found that on intravenous or subcutaneous injection, the thorium appeared in the urine and not in the feces. When administered by mouth, it appeared in the urine, but not in the feces. The conclusion appears justified that absorbed thorium is excreted by the kidneys, but that the metal is neither absorbed nor excreted through the intestine.

A Preliminary Study of the Toxicological Action of Thorium.—By Arthur F. Chace and William J. Gies. Our experiments comprised the third series in a study, still in progress, of the toxicology of rare elements[1] They were 27 in number and were performed on as many animals (frogs, mice, dogs). They were carried out before Baskerville's announcement of his discovery that thorium consists of *two* elements, named by him *berzelium* and *carolinium*. Publication of our results was deferred because of our desire and intention to complete the work with a study of the toxicological effects of these two new elements, which Prof. Baskerville has generously agreed to furnish at a later stage in his investigation. The foregoing communication by Prof. Sollmann has induced us, however, to present here our results as they stand. In some of the early experiments (1900) it was found that thorium (nitrate) had a uniform precipitative effect on various connective tissue mucoids. In our study, with Prof. Loeb (1902), on the antitoxic influence of ions, thorium (nitrate) was used as a tetravalent element, and was found to exert only very slight almost inappreciable antitoxic effects in $\frac{1}{8}$ *m.* NaCl, with fertilized fundulus eggs as the indicators. At that time we observed the strong precipitative effect of thorium on protoplasm, and the marked toxicity on various fishes and on both fertilized and unfertilized *Fundulus* eggs in sea water, although these facts were not recorded in our paper.

In the experiments on frogs and warm-blooded animals the tetra-chlorid was used exclusively. Of our results the following were in harmony with those reported by Brown and Sollmann: Thorium exerts marked astringent action. The chlorid is acid in reaction (in water). The aqueous solution of the chlorid blanched and hardened tissues, proteids were precipitated by it, and blood not only precipitated but blackened. Injected directly into the circulation even very small doses caused intravenous precipitation and resulted fatally. Subcutaneous injection resulted in local necrosis. Thus far we have not had any experiments with thorium in citrate solution or on the excretion of thorium.

The following results extend the observations reported by Brown and Sollmann:

(1) In frogs weighing about 25 grams no effect was observed after introduction per os, when less than 40 milligrams was introduced. This amount caused only slight symptoms. Subcutaneous injection of 40 milligrams caused death in about sixty hours. Injection of the same amount per rectum appeared to be more quickly followed by toxic results than when introduction occurred through either of the former channels. Introduction per os caused irritation of the throat, increased gastric secretion, ejection of gastric contents and increased peristalsis. It required per os approximately 1.5 gram per kilo to produce general toxic results, among which were anhydrosis, twitching and progressive weakening of the muscles, with paralysis of the forelegs preceding paralysis of the hind ones. In fatal cases the reflexes were abolished in the usual order. The general toxic effects after introduction subcutaneously or per rectum were about the same as those following introduction by way of the stomach.

(2) In *warm-blooded animals* (mice and dogs) relatively large doses administered subcutaneously caused restlessness, twitching of the muscles, progressive paralysis, labored breathing, stupor, death. Paralysis of the forelegs preceded loss of power in the hind legs. Injection of 5 grams of the chloride into a dog weighing 15 kilos failed to cause death. Ingestion of 2 grams, with 100 grams of meat, by a dog weighing 6 kilos, was followed in two hours by vomiting. The ejected matter was gradually eaten during the next few hours,

[1] We have already reported our observations on the toxicology of tellurium (1900) and of selenium (1902).

with no other apparent effect thereafter than loss of appetite and increased desire for water.

(3) The most constant and pronounced general effect of the tetra-chlorid of thorium was a progressive weakening of all the voluntary muscles.

MEDICAL AND CHIRURGICAL SOCIETY OF MARYLAND.

Regular Meeting, held January 20, 1905.

Pulmonary Stenosis.—Dr. Darling showed the heart of a patient who had died suddenly from violence and hemorrhage. There was stenosis and insufficiency of the pulmonary valve but no potent foramen ovale or ductus arteriosus. Thickening of the whole heart wall was extreme.

Flint Murmur in Ulcerative Endocarditis.—The murmur described by Flint in 1862 had, Dr. Thayer said, been heard in about fifty per cent. of the cases of pure aortic insufficiency seen at the Johns Hopkins Hospital; it was not, however, common to find it in ulcerative endocarditis. Four such cases he reported, the patients showing symptoms of ulcerative endocarditis with a presystolic murmur and the autopsy findings revealing no mitral lesions. It was easy to see how the anterior mitral curtain, practically continuous as it was with the aorta, vibrated with aortic regurgitation; and the attachment of the papillary muscle (which arose from the anterior curtain) being just above the apex might account for the thrill and murmur being most intensely heard at that point. The diagnosis of Flint murmurs was by no means easy. If, with aortic insufficiency a moderate mitral stenosis murmur was heard but no shock or snapping first sound suspicion of Flint murmur should be aroused. The pulse, too, did not have the "mitral" characters.

Paroxysmal Tachycardia.—Dr. Gamble reported an obscure heart case. The patient had had his attention called to his heart in boyhood by his physician and had always lived around its beats. Attacks of fluttering with changes in disposition, which varied with the character of the pulse, were the prominent features of the case. The physical signs were variable, signs of myocarditis with congestion of the liver and edema of the feet gradually developing. There was no pain, but attacks of apparent angina occurred with fair frequency. At autopsy fibrous myocarditis, sclerosis of the coronaries, and a mural thrombosis of the left ventricle were found. Many diagnoses had been made on this case and it illustrated the great difficulty of the diagnosis of myocarditis in the early stage. Dr. Thayer emphasized the importance of making patients exercise during the examination of the heart; a murmur which developed under exercise was suspicious.

Malnutrition in Children.—Dr. Kilmer, of New York, read a paper on this subject. The first cause of the condition was, he said, parental ignorance. The healthy conditions with which the parents of present parents had surrounded them during childhood had been forgotten. Breast milk was being superseded by condensed milk and patent foods. Education was begun too early, "higher education" was being overdone, the great social demands made on mothers were taking them away from their children. The second cause was found in disease of the children. Adenoids and tonsils were familiar examples. Disease of the parents was the third cause. This was most often lues, an old chancre in the father sometimes expressing itself in the child, as malnutrition without other symptoms. If other treatment was tried without result lues should always be suspected and mercurials and iodides (both borne well by children) should be ordered. In the general treatment, good sleeping room, plenty of fresh air, suitable bedclothing, medium underclothing, plenty of exercise and a warm bath once a day should be provided. School should not be begun until the seventh year. A daily nap should be taken, and the child should sleep from 6.30 P.M. to 7.30 A.M. Food should be high in proteids and poor in carbohydrates, and the stomach should be carefully treated. Iron, quinine, sherry and cod-liver oil were important drugs for malnutrients. Malnutrition should always be eliminated in the diagnosis of obscure cases. Dr. Rührah referred to the fact that comparatively little metabolism work had been done on children, though in infancy and adult age it had been well worked up. Probably in these patients it was not a case of poor absorption from the intestines but there was some break after assimilation, between that and excretion of end-products. A somewhat analogous condition was seen in diabetes. Dr. Mitchell said that the general environment was most important, and compared with it adenoids, etc., relatively insignificant. Dr. Kilmer said that feeding was overcarefully done up to the end of the first year and after that neglected.

BOOK REVIEWS.

How to Study Literature. By B. A. Heydrick. Hinds, Noble & Eldredge, New York.

This manual aims to facilitate the study of literature by means of outlines with suggestive questions arranged for the different classes of literature, narrative, lyric and dramatic poetry, the essay, the oration and prose fiction. The application of these outlines is aided by specimen studies in which they are employed, and an excellent list of suggested reading appears as an appendix. Versification and figures of speech are briefly treated in other appendices.

Report of the Government Hospital for the Insane to the Secretary of the Interior, 1904. Washington Government Printing Office.

This modest volume is a model of clearness, conciseness and interest, a report that really reports. From it one may gather a genuine appreciation of the vast work, pathological and executive, which is accomplished at the Government Hospital, and of some of the difficulties which it has to encounter. A number of excellent half-tones of the buildings add to the interest of the report, and the elaborate statistic tables are readily get-at-able for any information needed. Altogether the management of the hospital is to be congratulated upon its success in presenting its work to the public in such an effective way.

In the Year 1800. Being the Relation of Surgery Events occurring in the Life of Doctor Jonathan Brush during that year. By Samuel Walter Kelley, M.D. Vol. III. The Doctor's Recreation Series. The Saalfield Publishing Company, Chicago, Akron, O., and New York.

This, the third volume of the Doctor's Recreation Series, purports to be an arrangement of a package of old papers rolled in a leathern wrapper tied with a strip of the same material and marked in scarcely legible characters "The Property of Dr. Jonathan Brush, Private," which fell into the hands of a modern doctor. He found

them to contain not what too many doctors leave as their sole legacy to posterity, a collection of unpaid accounts of unpaid services, nor yet, as I half expected, clinical records of cases in practice, but a fairly connected narrative of events that transpired during the year 1800. It is really a story that brings out the features of the practice of medicine and surgery, with an account of a social status of the profession at that time, which will undoubtedly prove interesting reading, especially for those, and they are fortunately growing in number, who have acquired an interest in the old things of medicine. Many familiar names come into the book and it is very cleverly put together.

The Surgery of the Diseases of the Appendix Vermiformis and their Complications. By William Henry Battle, F.R.C.S., Surgeon to St. Thomas' Hospital, Formerly Surgeon to the Royal Free Hospital, etc., and Edred M. Corner, M.B., B.C., F.R.C.S., Surgeon-in-charge of out-patients to St. Thomas' Hospital, Assistant Surgeon to the Great Ormond Street Hospital for Sick Children, etc W. T. Keener Company, Chicago.

This little book from the skilful hand of one of the originators of the most frequently used abdominal incision,—the Kämmerer-Battle,—is certain to be very welcome to all. The authors have endeavored to summarize briefly the conflicting views of the physician, the pathologist and the surgeon, and have tried in an impartial way to place before the profession, the surgeon's views and conclusions in this very important malady. The book is rendered further interesting and valuable by having appended a most interesting and lucid chapter on the "Acute Abdomen" and one on life insurance in its relation to appendicitis. The authors are strict adherents to that school which advocates the wet method of treating peritonitis and that chapter on the subject is fraught with particular interest. Their notes on concretions and the rôle which they play as causative factors in appendicitis are interesting and concise. Considerable attention is devoted to the mode of formation of these concretions, the authors concluding that micro-organisms play an all-important factor. One cannot ask for everything in such a small book, but it may be permissible to suggest that in a future edition the distinguished authors will devote more attention to a consideration of the still unanswered problem: when to operate. If this question is answered in the book, it was not given a sufficiently prominent place. The volume is very attractively made, the printing and paper being of the best. It cannot be too strongly said that if this small and easily read book, which is much of the type and character of the writing of Sir Frederick Treves, were placed in the hands of every general practitioner of medicine, it would save hundreds of lives.

First Annual Report of the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis. The Henry Phipps Institute, Philadelphia.

The first annual report of this institute has a special interest in the fact that it *is* the first, and we can trace the development, gratifyingly rapid in this case, of its efficiency and magnitude. It is a well printed volume of 254 pages, and includes the lectures which have been delivered during the year under the auspices of the Institute by Dr. Trudeau, Dr. Osler, Dr. Biggs and Dr. Maragliano. The statistics are scientific rather than administrative, and give evidence that the threefold purpose of the Institute is being kept in mind in just proportion.

New Methods of Treatment. By Dr. Laumonier. Translated and edited by H. W. Syers, M.A., M.D., Cantab. W. T. Keener & Co., Chicago.

The author of this book has "endeavored" to quote his own words, "to furnish those interested in the subject of therapeutics with a definite and complete, and at the same time short and clear, information concerning the new drugs and methods of treatment whose worth has been established and which are sufficiently well known to be described in a definite and practical manner." The book certainly responds to a genuine need. The published formularies of the new remedies which appear from time to time do not always discriminate in accordance with a criterion of value, and sometimes fail to reach the men for whom this book is especially designed, the practitioner who meets the exacting demands of daily routine work with little time to investigate the new remedies and methods that multiply so rapidly. Special effort has been made in this work to include those methods of treatment which are not purely pharmacodynamic. It is to be regretted that the treatment of the subject-matter as a whole is somewhat fragmentary, but completeness in such a work is hard to arrive at, and the book may well prove a valuable aid to the practitioner.

BOOKS RECEIVED.

First Annual Report of the Henry Phipps Institute. 8vo, 265 pages. Philadelphia.

Anemia in Porto Rico. Hon. B. Winthrop. 8vo, 150 pages. Government Printing Office, Porto Rico.

Manual of Operative Surgery. By Dr. J. F. Binnie. 12mo, 645 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Translations of the American Rhinological Association. Twenty-sixth Annual Meeting. 8vo, 360 pages. Illustrated.

The Diseases of Society. By Dr. G. F. Lydston. 8vo, 626 pages. Illustrated. J. B. Lippincott Co., Philadelphia and London.

Twentieth Annual Report of the Bureau of Animal Industry. 8vo, 618 pages. Illustrated. Government Printing Office, Washington.

A Manual of Gynecology. By Drs. D. B. Hart and A. H. F. Barbour. Sixth edition. 8vo, 736 pages. Illustrated. W. T. Keener & Co., Chicago.

International Clinics. Volume IV. Edited by Dr. A. O. J. Kelly. 8vo, 314 pages. Illustrated. J. B. Lippincott Co., Philadelphia and London.

An Elementary Treatise on the Light Treatment for Nurses. By Dr. J. H. Sequeria. 12mo, 83 pages. Illustrated. The Scientific Press, London.

Examination of the Urine. By Dr. G. A. De Saxe. 12mo, 391 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

A Manual of Personal Hygiene.. By Dr. W. L. Pyle. 12mo, 441 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

A Text-Book of Insanity. By Dr. R. von Krafft-Ebing. Translated by Dr. C. E. Chaddock. 8vo, 638 pages. Illustrated. F. A. Davis Co., Philadelphia.

Diet in Health and Disease. By Drs. J. Friedenwald and J. Ruhräh. 8 vo, 690 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London. don.

Essentials of Bacteriology. By M. V. Ball. Edited by Dr. K. M. Vogel. 12mo, 243 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

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ORIGINAL ARTICLES.

NTRACRANIAL TRAUMATIC HEMORRHAGE.

BY J. SHERMAN WIGHT, B.S., M.D.,
OF BROOKLYN, N. Y.

TRACRANIAL traumatic hemorrhages may be ural, pial, or cortical. The deeper hemor- es are derived from the vessels of the pia r and from or through the cerebral cortex, are always originally situated beneath the eral arachnoid membrane, although if the avasation is sufficiently large it will secon- y break through into the arachnoid cavity. extension has no clinical or other impor- e, but to specialize them as subarachnoid er than as subdural would somewhat more ely define their anatomical position. The gnation pial and cortical as the subarachnoid orrhage is of meningeal or visceral origin, topographically exact and pathologically dis- ive.

pidural hemorrhage may be derived from the pic vessels, and is usually inconsiderable in unt. If it escapes from the cranial cavity appears externally beneath the pericranium tuations noted in connection with bone frac- s its importance is mainly diagnostic, and if retained it is difficult to occasion symptoms. ay be derived from the dural vessels, and the extent is in proportion to their size, and ase the middle meningeal or either of its ary branches is involved the danger to life mes imminent. The lacerations may be oc- oned by a wound inflicted by a fragment of inner table, by a rupture in the line of frac- , or by contre-coup, and may even occur out cranial lesion. The dural sinuses are a ier source of large hemorrhages, probably n direct rupture of their walls, but more rally from wounds by an osseus fragment. accumulation of coagula is less than in the ingeal variety, since the fragment which es the injury so often closes it till disturbed nterference.

al hemorrhage is occasioned by rupture of essels of the pia mater and is primarily con- to its meshes. It is one of the results of cranial contusion and is independent of epi- l extravasation. It may appear as punctate avasations. It more characteristically forms in sheet over the vertex; if it is in large tity it breaks into the arachnoid cavity. It occur in patches or be universal, covering ertex upon one or both hemispheres.

ortical hemorrhage is the direct result of a d of the brain substance which may be su- cial or may be subcortical with an access of blood to the surface by rupture of the interven- ing tissues. It varies in extent from a small oozing to an enormous effusion, breaking through the pia mater into the arachnoid cavity. If the hemorrhage does not reach the cerebral surface, it differs from an apoplectic effusion only in cause and attendant conditions. The epidural blood never penetrates the dura unless that mem- brane has been ruptured by the violence of the original injury. If no cortical laceration can be discovered, it is impossible for the hemorrhage to be of cortical origin except in those cases that admit of the following classification:

1. Traumatic apoplexy occurring simultan- eously with the injury. In these cases, rare, but of great medical importance, the patient, im- mediately after a blow on the head, develops the symptoms of a hemorrhage of the internal parts of the brain. Usually the blow is not severe and all evidences of injury to the scalp or skull may be wanting. The symptoms are those of spon- taneous apoplexy and may be quickly fatal. There may be hemiplegia, involving arm, leg, and face, with more or less recovery. Such hemiplegia is more complete than in traumatic cases, and the evidences of irritation and the symptoms of concussion are wanting. In addi- tion unmistakable signs of general vascular de- generation are present. In a recent case a pa- tient was struck on the head in a street brawl. He became momentarily unconscious and com- pletely hemiplegic. Examination a few days later showed left hemiplegia, complete restora- tion of psychic function, no general brain symp- toms, but a well-marked arteriosclerosis of the peripheral arteries, and a hypertrophied heart with a systolic murmur at the apex. The expla- nation of these cases consits in a pre-existing weakness, by miliary aneurisms or otherwise of the walls of the cerebral arteries, which, when subjected to a sudden rise in blood pressure, give way. It is possible that the rise in blood pres- sure is due to the mechanical effect of the blow. In many cases attendant circumstances leave lit- tle doubt that the psychic factors of fright and excitement were the most active causes of the blood-pressure increase and the consequent ex- travasation.

2. Traumatic apoplexy occurring shortly af- ter the injury (traumatische spät Apoplexie). This condition, described by Bollinger,[1] comes on a few days or weeks after a head injury. The hemorrhage which is fatal takes place in the neighborhood of the fourth ventrical and the aqueduct of the sylvius. Bollinger maintains that the hemorrhage is preceded by local soften-

1 Virchow's Festschrift, Berlin, 1891.

ing, which in turn has been caused by unequal pressure of the cerebrospinal fluid. This latter hypothesis remains to be proved for all cases. The injury is invariably to the head. It may or may not cause unconsciousness. In any event the patient recovers and is able to return to work. A considerable proportion of cases have been in young persons. After a few days or weeks, headache begins, somnolence and coma, with paralysis of the extremities or of the cranial nerves sets in, or after the same period of freedom an apoplectic stroke may occur without any warning.

3. Apoplectiform symptoms occurring long after the injury. The symptoms in this class point to a slow increase in vascular occlusion in parts long before the seats of traumatic insults and are those of slow thrombosis. It is generally seen in cases of fracture of the skull with extensive laceration of the brain. The increase of symptoms begins after a lapse of many years. A man, reported in the *Lancet*, 1904, sustained a compound depressed fracture of the vertex by being hit with a brick in 1861. The left leg was paralyzed, but recovered in a few weeks. Ten years later the leg became weak and finally almost completely paralyzed. The arm also lost considerable power and the intellect became blunted. Frost, in the *American Journal of Insanity*, 1903, reports the case of a man who, twenty-six years after a compound fracture of the skull with extensive loss of substance, slowly developed paralytic symptoms in the limbs of the opposite side. The autopsy showed general degeneration in the cerebral arteries, but more marked on the affected side of the brain. In this region also the brain showed cavities, the results of small areas of softening.

The injury and amount of violence vary extremely. In cases of severe violence, lacerations or contusions of the brain are frequent complications, with less violence either no fracture may be present, or if one be present it is often only a fissure and may involve the internal table only.

The interval of consciousness between the stunning effects of the injury and the onset of compression from the effused blood varies when present from a few minutes to days. In a second class it is but little marked and may be easily overlooked altogether. In the third and last set of cases this interval is never present at all, owing to a very large hemorrhage-producing compression symptoms; coexisting depression of bone; coexisting injury to the brain, or drunkenness of the patient.

Hemiplegia, though well marked in a large proportion of cases, must not be looked upon as essential. It may be ill marked or replaced by some other condition of the limbs and we find:

(*a*) Hemiplegia present and well marked. The leg or arm, and usually both, when taken up and let go, drop like those of a corpse. The hemiplegia is occasionally on the same side as that injured, the extravasation taking place on the side o site that struck.

(*b*) Hemiplegia present but little marked these cases, which are not uncommon, the travasation may be overlooked. They fall at least two divisions. In one the hemipleg little marked throughout, owing to some p of accommodation on the part of the brain the circulation remaining feeble, owing to coexisting shock from the time of injury t moment of death. In another group of the hemiplegia is ill marked because of duration, coming on as it does in these toward the close, giving but little warning leaving but short time for interference. T tests should be made; resistance to passive tion of the limbs, the power of the grasp, if the result of the needle prick, whether the tient moves either of his hands, or whic them, when the cornea is carefully touche the cilia gently pulled.

(*c*) Hemiplegia present but temporary, duced by the brain being able to accomm itself to the blood, which is a very rare c tion. The mechanical compression which brain suffers as the result of the intrusion o ditional matter into a cavity with unyie walls which the viscus exactly fills, the c quent disturbance of the circulation and n tion by more or less complete obliteration o cerebral capillaries, has been generally he be entirely adequate to explain all the ch teristic attending symptoms. It has been perimentally demonstrated that when wax i jected into the cranial cavity in excess maximum amount of 6.5 per cent., it being capable of absorption, distinctive symptoms produced, and when the amount reaches twelfth to one-sixth of the cerebral capacit its situation is epidural or subdural, fatal results. In compression from hemorrhage resultant vascular disturbance leads to defi nutrition. This is preceded by displacemer the cerebrospinal fluid into the vertebral c This continues till the capacity of that diver lum is exhausted, and then circulatory inte ence begins as the tension of cerebrospinal is augmented under pressure of continued travasation and by increasing resistance in vertebral canal, capillary flow is checked may cease altogether with complete cerebral mia and abolition of all functional control. intercurence of edema from capillary trans tion may further increase intercranial pres If the hemorrhage is epidural, sudden and fuse, permanent inhibition of consciousnes the same extravasation is more gradual, cer anemia may never be complete or not until has been afforded for relief; if it be of mo amount as well as gradually effused, it ma capable of absorption without the necessity o terference. The pial and cortical hemorrh are rarely sufficiently copious to produce ma

ebral anemia, but they are associated with er lesions which contribute to a fatal result. these instances of hemorrhage serious inter- ence with the vascular supply and the occur- ce of answerable inhibitory symptoms are prehensible.

d) Monoplegia, or paralysis more marked in limb than in the other, is a very rare condi- n, as the hemorrhage generally causes pres- e upon all the motor area.

e) General paralysis is another rare condi- n which may be explained by a very large clot, , on the left side, rapidly effused and making ssure through the left side of the brain upon right as well, or by coexisting extravasation the brain itself.

f) Absence of any paralysis is due to the ef- ed blood finding its way through a fracture the skull beneath the scalp.

g) Limbs rigid, convulsed or twitching is bably due to contusion of the brain substance nore spots than one.

f the pupils are normal in reaction to light, case is more likely to be one of compres- n only of the brain without other injury and prognosis is good as to recovery if trephining mmediately performed. If the pupils are in- sitive at the same time dilated, the compres- n is probably extreme, and, while trephining rgently called for, it is less likely that in these es the brain will recover itself after the re- val of the clot. If one pupil is found widely ted, the other being normal or contracted, if the dilatation be present opposite to the e of the body which is paralyzed, taken with er evidences of hemorrhage, it points to a ge clot reaching down into the base and press- forward upon the sphenoidal fissure and com- ssing the third nerve.[2]

The pulse will vary according as the case is of well marked uncomplicated extravasation complicated with contusion or laceration of brain, and if the concussion stage has been ere, according to the degree to which the rt has recovered from this. In well marked complicated compression it will be slower than mal down to 52 and still falling and some- at full and laboring.

The degree of coma varies with the amount d rapidity with which the blood is effused. here effusion is rapid and compression great coma may be as deep and complete as in apo- xy, but it may be found that though the coma pparently deep, this is not really so; the pa- nt may moan constantly or may move his limbs bly when disturbed. Commencing coma may taken for normal sleep or drunkenness. In a cases the onset of coma is deferred till late, s and even months. Its onset is here sudden, course rapid, and it generally ends in death. Delirium, irritability and restlessness, when of mediate occurrence and when the effusion is moderate in amount, may be considered symptoms of hemorrhage, but only in the sense that a pleuritic pain is counted a symptom of pneumonia.

Respiration in well-marked cases is often stertorous and somewhat slow. The still greater alterations in breathing are, catchy short respirations, cyanosis and gasping, irregular breathing, ceasing for intervals of time, ten to fifteen seconds, and then repeated.

Case I.—C. N., a young man in fair health, received a severe blow on the left side of the head. Though dazed by the violence, he was able to get upon his feet and stagger off. On arriving home he became unconscious and remained so for several hours. On emerging from the attack his power of speech was gone and his right side paralyzed. Subsequently he again lost consciousness for some hours and again recovered. The hemiplegia and aphasia persisted for some time and it was only after the lapse of weeks that he could articulate or get about. About this time he suffered from repeated attacks of Jacksonian epilepsy and later, through a period of years, from flightiness, consisting of lapses of memory and confusional states. Eleven years later these seizures had become very rare and he became afflicted with severe and unremitting cephalalgia. There was nothing very typical about this pain; it involved the whole head, with occasional tendency to acuity in the left parietal region. Pressure disclosed no unusual tenderness, and the ophthalmoscope could find no token of any increase in intracranial pressure. There was no disturbance of locomotion. The right patellar reflex was a trifle increased. Iodides were given in large doses with no benefit. Morphine gave some relief. The following operation was performed at each corner of a quadrangle measuring two inches on a side and embracing in its area that portion of the left parietal bone situated immediately above the anterior central and posterior central convolutions, an opening was made with a small trephine. A chain saw was used to divide the bone between these openings and a flap of bone was turned back with periosteum and scalp attached. The dura was found slightly thickened at the upper portion of the opening but no adhesions. The dura was thickened and adhesions well marked at the inferior margin of the opening and extending below it for some distance. The adhesions were thoroughly broken up, the flap replaced and the wound closed. Recovery took place and the cephalalgia entirely disappeared.

Corning, who reported this case, states that the manner in which the relief was obtained involves at once the pathology of hematoma and the morbid physiology of intercranial headache. On the one hand we have the insensitiveness of the hemispheres demonstrated by both vivisection and operative incursions, on the other the

fact that neoplasms embedded in their substance may and often do give rise to excruciating pain. In Niemeyer's Practical Medicine, Vol. II, p. 159, it is stated that the filaments of the trigeminus going to the dura mater are irritated in these cases and give rise to pain. The vagus also gives off sensory branches to the dura.

Case II.—N. D., age fifty-two years, a grocer, was thrown from his carriage. He fell on his head and received a large scalp wound on the right side of his forehead and a small one about the middle of the forehead. He remained unconscious from the stunning effect of the injury or the concussion for a few minutes. He was taken to a hospital, the wounds were sewed up, dressing applied, and he was allowed to go home in a carriage. He was seen that day by his family physician who found him suffering from partial loss of the sensation of the lower extremities, their movements slow and showing great exertion, temperature subnormal, and pulse about normal. The following day the temperature rose to 99° F. and the pulse became fuller, there was some vomiting, and severe frontal headache. Left hemiplegia was present but very little marked. The hemiplegia disappeared and the wounds healed up so that he left his bed at the end of three weeks, showing vertigo, iritability, partial anesthesia and some muscular weakness. At the end of two months he did some light work. Muscular weakness continued to increase marking a return of the left hemiplegia, pain in the head became more severe, vertigo more pronounced, so that his wife was obliged to follow his movements about the house to prevent his falling, avoiding this accident on several occasions by prompt action. Three and a half months after the accident he became so much worse that he was obliged to take to bed again. I saw him in consultation two weeks later and recorded the following facts: Coma, but moved his limbs feebly when disturbed and complained of pain in his head when aroused. Respiration stertorous and slow, pulse 60, temperature 99.2° F. per rectum. Tongue swollen and coated and was protruded straight out. The eyes and head deviated to the right side. The pupils were insensitive and somewhat dilated. He was voiding feces and urine in bed. There was no reaction to the needle prick. The grasp of both hands was feeble. There were rigidity and muscular twitchings of the extremeties and paralysis was more marked on the left side. He was placed on his feet and stood for a short time and then fell to the left side. Urine analysis was negative. A diagnosis of hemorrhage and compression was made and operation advised, which was refused. He grew steadily worse: general paralysis became fully developed and he went into deep coma and died thirteen days later.

Post-mortem examination showed a large curved scalp wound with a radius of about two inches and its highest point about three inches above the nasion, extending from the middle o forehead into the right temporal fossa; a s curved scalp wound about three-quarters o inch long situated one inch above the nasion one-quarter of an inch to the left of the m of the forehead. No atheroma of the ve Fracture of the outer table and slight depre of the inner table of the frontal bone at the of the small scalp wound, some discoloratio the bone resembling necrosis. Removal o calvarium showed the depression of the table to be slightly to the right of the longitu sinus. The right cerebral hemisphere was ered by an encysted clot of blood extending the seat of fracture along the sagittal mid for 4¾ inches, measuring 2¾ inches at its est point, and depressing the cerebral corte inch and a half. This came from a pial he rhage that had broken into the arachnoid ca It had its origin in a venous tributary nea depressed inner table where there was evi of recent bleeding. The clot itself showed d ent stages of coagulation corresponding to cessive accumulations of blood. The fourth ticle contained a small amount of cerebros fluid. See Figure 1.

Fig. 1.

This was a case of pial hemorrhage sho as points of interest: (1) An interval of sciousness following the stunning effect o injury of over four months. (2) Cerebra emia completed in about four months, whicl preceded by deficient nutrition for a perio termined by the degree of the vascular dis ance from compression. (3) Hemiplegia pr early but little marked. It was temporary a extravasation was gradual and the brain ac modated itself to the pressure. (4) There a period of improvement during which he rhage ceased. (5) Hemorrhage recurred at cessive periods as shown by the different s of coagulation and additions to the original (6) Toward the end hemiplegia became marked. (7) Paralysis was more marked o side than the other. (8) General paralysis peared at the end. (9) The clot at death about one-eighth of the cerebral capacity.

Allingham reported a case of pial hemorr in the *British Medical Journal*, Vol. I, 188 887, which he operated on one week after th cident and got a recovery.

Phelps has reported a number of fatal cases. Fifteen days was the longest time recorded from the date of injury to the date of death.

Case I.—Violent delirium for two days, recovery on the sixth day followed by unconsciousness and hyperesthesia. Temperature 103° to 104° F., later 100° to 103° F.; final temperature 103° F. Death in twelve days. The autopsy showed pial hemorrhage over the left occipital lobe extending into the median fissure, subarachnoid serous effusion, and absolutely no fracture of the skull.

Case II.—Delirium, normal pupils and respiration, temperature 101.4° F., pulse 114. Later excessive sensitiveness and irritability. The delirium continued, though it did not prevent rational reply to questions, temperature rose to 103.2° F. on the fifth day, and afterward fell very gradually to 100° F.; on the fourteenth day it was 103.4° F., and on the fifteenth, five hours ante mortem it was 103.8° F. and one hour post mortem it was 104.2° F. The autopsy showed pial hemorrhage over both hemispheres and in largest quantities over the parieto-occipital junctions, some subarachnoid serous effusion in the left frontal region, general hyperemia with punctate hemorrhages most marked on the left side, and no fracture of the skull.

Case III.—Absolute unconsciousness till death, one hour and a half after the reception of the injury; small wound behind right ear, dilatation and immobility of both pupils, respiration on admission 42, an hour later 21, ceased at death rather suddenly; no cyanosis, pulse feeble and soon became imperceptible, temperature on admission, 98.6° F. an hour later 98.2° F. The autopsy showed fractures of both tarsi comminution of both calces and right astragalus, fracture of the left leg. The patient fell, landing upright on both feet, transmitting the force through the lower extremities. There was a pial hemorrhage to the extent of several ounces of fluid blood mainly at the vertex and in larger part on the left side extending into the median fissure and which had broken through into the arachnoid cavity, also in considerable quantity upon the inferior surface of the cerebellum about the median line and covering the pons, optic thalami, and corpora striata in the order named, thrombosis of minute vessels generally most pronounced in the optic thalami and the pons, edema of the pons.

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Pennsylvania Society for the Prevention of Tuberculosis.—The annual meeting of this society was held Wednesday, April 12, at the Academy of Natural Science. At this meeting the annual election for officers was held.

A PRELIMINARY REPORT ON THE USE DIPHTHERIA ANTITOXIN IN EPIDEMIC CEREBROSPINAL MENINGITIS.

BY FRANCIS HUBER, M.D.,
OF NEW YORK.

"That branch of bacteriology which dea with the mutual antagonistic relations of pat ogenic germs is still in its infancy. The fac already discovered suggest important develo ments in the future. To what extent clinicia will be able to utilize these antagonisms in t treatment of disease it is difficult to forete Medical News, March 4, 1905.

The above extract serves as an excellent i troduction to the following:

Dr. Arthur J. Wolff, of the Board of Healt Hartford, Conn., "early found that there is decided antagonism between the Klebs-Löffl bacillus and the meningococcus, and during t course of study on this portion of the investig tion found that pure cultures of the mening coccus were killed by the antidiphtheritic seru and not only precipitated when mixed with t latter, but active cultures, when mixed in bu with the antitoxin are precipitated in the sa manner. The ubiquitous newspaper man g hold of the whole matter, ere we had time finish our work or our paper."—*Medical Reco* March 11, 1905, page 3.

On the strength of the above Dr. E. Wait felder used large and repeated doses of dip theritic antitoxin subcutaneously. The meth was given a fair trial and his impressions a reported in the journal just quoted. The resu obtained at Roosevelt Hospital have not tend to confirm the enthusiastic reports of the ber ficial effects observed at Gouverneur Hospita

In Beth Israel Hospital and, a little later, Roosevelt Hospital, in the service of Pro Jacobi and Peabody, diphtheria antitoxin, b cause of the negative results obtained from use subcutaneously, was injected directly in the subarachnoid space. A lumbar puncture w performed, 4 to 6 drams and even larger qua tities of cerebrospinal fluid were allowed to e cape, then 1,500 to 2,000 units of antitoxin we slowly injected. No ill effects followed in t series of cases in which this was done. In o case an antitoxin rash was observed seven da later. In some of the cases only one dose w given, in others the injections were repeated tv or three times.

It appears to the writer that the results a promising, though final judgment is suspend until the number of cases is larger and the o servations have extended over a longer peri of time. Of course the treatment should be r sorted to early, before the anatomical chang due to the seropurulent, purulent or fibrinous e udate, have taken place. The malignant type not affected in the least by the method.

In two cases, one of which was of the fo droyant type, lumbar puncture revealed a gel tinous exudate, but a few drops of a thick, te

ious secretion escaping. Here it was impossi- e to inject the remedy into the spinal canal. In e children's service at the Beth Israel Hospital, e fluid obtained by lumbar puncture was exam- ed at once and when the characteristic diplo- ccus was found, the injections were made rough the same needle—strict asepsis being served.

Not only did we observe an amelioration of e clinical features, but in several instances in nich lumbar puncture was repeated within rty-six to forty-eight hours the number of lynuclear cells was less and the diploccocci d diminished in number. In two cases in nich the cerebrospinal liquor originally was eamy in color and consistence, the character the fluid showed decided changes—becoming rbid and thin.

The above remarks are merely intended as a eliminary report, a more detailed account, with mperature charts, will be presented at a later te.

Dr. Wolff, during a recent visit, suggested at better results might be obtained if the anti- xin were used subcutaneously as well as intra- inal. He bases his views upon the fact that proved methods have established the frequent esence of the meningococcus in the circulation.

ME POINTS IN THE CONSTRUCTION OF A HIGH FREQUENCY MACHINE.[1]

BY CLARENCE A. WRIGHT, F.R.C.S., F.F.P.S.G.,
OF LEYDENSTONE, ENGLAND.

It is the sudden pulses of judicious criticism ther than the orderly vibrations of unqualified proval that best enable us to distinguish the ms of true knowledge from the paste of pre- rlogical assumption: I therefore invite your icism of the experimental data that form the sis of the present communication, in the hope at a full discussion may lead to the improve- ent in instrumentation which we all so much sire.

Without entering upon the vexed question of e very problematic advantages and more mani- st disadvantages of employing oscillatory cur- nts of low tension but large ampèrage in thera- utics, it may without fear of contradiction be serted that the demand of the moment is for a gh frequency machine, whose output of current ill approximately equal, if not even exceed, one mpère: I purpose, therefore, to consider in ief detail some of the physical data which have bearing upon the subject, and in so doing, inci- ntally to point out certain other details in hich construction can be improved.

I will not waste valuable time in imposing on our attention the explanatory details of the two ethods by which an alternating current of high equency can be generated, for every student f electricity is familiar with these. He is also aware that the mechanical process was first in the field in order of time, and that it has ever since exhibited strong tendencies to somniscence from which it has lately been aroused by the superlative resuscitative efforts of Mr. W. Duddell and Herr E. Ruhmer. I will not, however, venture to predict the results of this new revival, nor claim a "great and glorious future" for these machines; as I fear that my efforts to shine as Saul among the prophets of high frequency would only convince you that my lips at birth were not graced by the silver spoon of prophecy—a fact of which I personally am well aware.

It may, however, be advantageous to recall sundry details connected with the electrical process of generation. Most modern text-books of electricity are careful to insist on the oscillatory character of condenser-discharges, and to detail in a very methodical manner the limiting circumstances; some go further and point out the conditions under which the spark-discharges of an induction coil or static machine can participate in these peculiarities; a few even venture to discuss the advantages that accrue from the combined use of an induction coil and condensers as a source of oscillatory currents; but the number of those which afford a scientific explanation of the phenomena of spark-discharges is extremely limited, although it is the theory of spark-discharges alone which can furnish us with the much-desired clue to further improvements in high frequency instrumentation.

The manuals of electricity, which purport to teach the young idea how to shoot, proclaim more or less loudly the disruptive nature of a spark-discharge. They talk learnedly about the potential difference between the electrodes producing a stress, to which the dielectric resistance of the gaseous contents of the air-gap eventually succumbs, and by so doing allows a spark to pass. Carefully analyze this statement, and you will find that it essentially consists of a verbal paraphrase—a restatement in scientific terms—of a fact of observation, and as such affords no real explanation of the cause of the phenomena, nor yet a valid answer to the question, "What conveys the current?"

Without superlative conceit one might imagine that this oft-reiterated assertion would cease when attention was called to the error. Unfortunately, human nature is not built on these lines, and the poet, Moore, with a deep knowledge of human frailty, asserts that:

> "Of all the concatinations of sound, about which the world makes a pother,
> None with so much glory redound as when one blockhead re-echoes another."

To return to our muttons—it may be said that the ionic theory of electrical conduction, which is the bed-rock of physical chemistry, affords us the best answer to the question: "What conveys the current?" for it recognizes that the air must be converted from an insulator into a con-

[1] Read before the Roentgen Society of London on February

ductor before a curent can pass—in other words, that ionization is essential as an antecedent to electrical conduction.

I need not remind you that the movement of an electric current through an electrolytic solution is accompanied either by the revolution of gases at the electrodes, or by the deposition of substances held in solution about these two points. To explain electrolytic conduction we are driven to hypothecate the existence in the solution of free ions, which act as carriers of the current. The question is: "Whether this idea of free ions can be applied to substances in the gaseous state, so as to explain the conduction of electrical discharges through them?"

Let us institute a comparison between the two cases. In dealing with an electrolytic solution, we are accustomed to regard the *solute* rather than the *solvent* as the chief source of free ions, and we speak of the dissociation of the molecules of the electrolyte, meaning thereby the solute, as having been produced by the action of the solvent upon them. Now, in the case of an absolutely pure elementary gas, what is it that promotes dissociation? From whence are the free ions derived? Do all pure substances in the gaseous state contain free ions? These are questions we may well ask ourselves.

Let us regard some pure elementary gas as being alone present in the air-gap, and see whether we can learn anything regarding its electrical properties. Now, the researches of Thomson, Warburg, Strutt and others have shown that a perfectly pure elementary gas is in an electrically unstable state, and when perfectly dry and freed from all traces of contamination, will stand a potential difference several times as great as is ordinarily required to produce a spark-discharge through one less scrupulously freed from contamination. It is evident, therefore, that such gases must contain a minimum of free ions and that the tendency to electrical instability is reduced by admixture with a small quantity of aqueous vapor or by traces of other gases present in it as a contamination.

Further, we notice that if the gas employed be enclosed in a glass tube (fitted with fixed electrodes and connected with an exhaust pump), the spark-potential diminishes as the pressure of the contained gas is reduced, until the critical spark-length is arrived at. It is evident, therefore, that diminution of pressure within certain limits favors ionization. The superheating of gaseous compounds has been also found to promote dissociation. Are we then to suppose that ionization of the air in the spark-gap proceeds from either of these causes? Not necessarily; for there are other influences equally, if not more, potent to which it can more reasonably be ascribed. What then are the factors which promote dissociation of the gaseous molecules in the air-space?

Let us proceed in an orderly manner, and arrive at a differential diagnosis of the cause by the process of exclusion. As the terminal knobs of the discharger are not rendered incandescent prior to or during the passage of the discharge-current, it is evident that ionization by incandescent solids is quite out of court in so far as primary ionization is concerned.

Again, if we regard the spark-gap as enclosed in a perfectly fitting glazed earthenware or wooden box, guaranteed perfectly opaque to all luminous vibrations, the possibility of ionization being due to the photo-electric effects of external light can also safely be excluded. We can proceed thus through the whole category of known ionizers until at last circumstances compel us to refer it to the direct action of the electric field, which, before sending an electric current through the air-space must first render its gaseous contents conductive. How is this effected?

All who accept the ionic theory of conduction admit that every electric current traversing a metallic conductor is essentially *anionic*, and it is the wire connected with the negative pole that initiates ionization of the air-space by projecting into it a multitude of negatively charged particles—the electrons. These, in their onward movement, collide with the molecules of the gas, and by so doing promote their dissociation. This can be readily substantiated by noticing that the photo-electric effects of light, more particularly ultraviolet light, are mainly exerted upon the negative pole, a point which has been established by the experiments of Hertz, E. Wiedemann and Ebert, Swyngedauw, Warburg and others. Warburg ascribes this effect to the diminution of the "*lag*" rather than to any direct influence upon the "*spark potential.*"

Again, if the air present in the spark-gap be at ordinary atmospheric pressure, the number of undissociated molecules present must be relatively great. The electrons, therefore, will not have to travel far before they encounter an undissociated molecule; consequently ionization of the air-space must primarily be restricted to the immediate neighborhood of the cathode. Here the positive ions produced by the disintegration of the molecules tend to accumulate, and by so doing to favor the evolution of a further discharge of electrons. Meanwhile, their electro-negative better-halves, in moving anodeward, are brought into collision with other undissociated molecules. Once the process of ionic fractionation of the gaseous molecules in the spark-gap has sufficiently advanced to render the air conductive, a spark passes.

With the passage of the first spark, an important alteration in the medium of electrical conduction takes place. Schuster and Hemsalech have shown that if the sparking distance be not too great, it is only the first spark of a condenser discharge which passes through air; the succeeding ones all pass through a medium composed of the vapor of the metal of which the terminals are formed. Further, the introduction of self-induction into the discharge circuit tends to

banish the air lines from the spectrum of the spark and to render the metal lines more brilliant; for self-induction, by increasing the time during which the oscillations last, allow time for the volatilized metal to become uniformly diffused throughout the air space. Having reached the stage where the successive sparks traverse an atmosphere of metallic vapor, let us consider the factors now at work in producing and maintaining ionization.

You will doubtless remember that the heating effects of a spark-discharge greatly exceed that of the electric arc, and that elevation of temperature facilitates the splitting of the molecules. This is a factor of great importance. It is needless to add that the rarification of the vapor in the spark-gap promotes the more efficient discharge of electrons, and allows them to acquire a greater velocity. In this aerially constituted Crookes' tube the velocity acquired by the positive ions in traversing the Crookes' dark-space is accelerated, and so promotes further ionization. Nor are we yet at the end of our list of possible causes; there are still others, among which the folowing deserve notice:

(*a*) *Ultraviolet Rays.*—These are generated by the spark in quantities which depend somewhat on the nature of the substance used to form the electrodes. Projected upon all surfaces in the vicinity, a certain proportion of the rays find their way back, by reflection, to the negative pole, and so diminish the lag.

(*b*) *Derma Rays.*—These pulses are caused by the acceleration of all charged ions under the influence of the electric field. They are the analogues of the secondary and tertiary Roentgen rays noticed by Perrin, Sagnac, Roentgen, Langevin, Townsend and others. Hoffmann has proved that they possess a remarkable capacity for ionization.

(*c*) *Entladungstrahlen.* — These are better known to us in England as Townsend's easily absorbed radiation. In America they constitute what is known as the "Piffard" rays. They are probably ether vibrations; they undergo no deflection in a magnetic field, excite thermo-luminescence, and by ionizing the air discharge and electroscope even when positively charged. They are generated in the greatest abundance when the sparks pass between aluminum terminals, and the ionization they cause lasts several minutes after the cessation of the discharge.

It is obvious, therefore, that in proportion as the ionization of the gaseous contents of the spark-gap advances, the dielectric resistance of the air is reduced; so that with a constant spark-potential the output of current becomes greater. Without dilating upon so self-evident a proposition, we may, as time presses, pass on to the consideration of certain other experimental data, which have a bearing upon electrical conduction.

The first of these to which I shall draw attention is Prof. Slaby's experiments to determine the proportional conductivity of single versus multiple spark-gaps. The following procedure devised by him was employed in the experiments: An oscillatory circuit was formed by connecting *in series* two spark-gaps (the one of fixed, the other of variable length), along with a condenser and inductance, a graphite rod which serves as a variable resistance, and a delicate hot wire milliammeter. To prevent the final potential of the fixed spark-gap from being affected by alterations in the length of the variable spark-gap, the latter was shunted with an electrolytic resistance. Ammeter readings were taken with the variable gap at different lengths from zero upward the current was thus obtained as a function of the spark-length. In the next series of experiments the graphite resistance was brought into play, and its length altered so as to compensate for the decrease in the length of the variable spark-gap, a new series of records were then obtained. When plotted at equal ordinates, these two curves gives the resistance of the spark-gap in ohms.

Prof. Slaby's results plainly proved that the resistance rose parabolically for small lengths, and then increased linearly. It was likewise noticed that increased capacity, which is tantamount to diminished oscillation frequency, produces a diminution in the resistance per mm. of air space at all lengths. By plotting the conductance of the air-gap on an oscillation period base, it was found that as the frequency diminished, the conductance also fell, at first linearly, then much more rapidly, so that for all periods small spark-gaps were more than proportionately better conductors than a longer air-space. For instance, the effective resistance of a gap of 10 mm. under a discharge potential of 30,000 volts amounted to 15 ohms, while that of three gaps of 2.5 mm. each when coupled *in series* did not exceed 0.6 ohms with the same discharge voltage. These experiments point to the fact that there is a distinct gain in amperage by the use of the multiple spark-gap.

The second point to which I will refer is culled from a communication made by Herr W. Weicker to the *Elektrotechnische Zeitschrift* for November 3, 1904. He has shown that the relation between air-gap and disruptive voltage only follows the straight line law, when the discharge takes place between points. When, however, metallic spheres, such as the knobs of a discharger, are employed, the character of the phenomenon depends upon the way in which the knobs are arranged. In these are placed *vertically, i.e.*, one above the other, there are two distinct disruptive voltages for any air-gap between 65 mm. and 160 mm. For a gap of 150 mm. the voltage approximately are 57,000 volts and 82,500 volts. When the knobs are arranged *horizontally*, the law is represented by a single curve with irregularities. This furnishes us with the clue to the proper arrangement of the balls in the multiple spark-gap.

The third matter that I consider deserving of

notice is the results recorded in Warburg's paper[1] as to the action of ordinary daylight in producing an appreciable decrease in the lag. In spite of the volumes of very pretty talk about silent spark-boxes and of deadening noise by enclosing the spark-gap in a wooden box lined with felt, I ask you to remember that in preparation as you prevent external light from acting upon the spark-gap do you sacrifice efficiency. In commenting upon Warburg's paper, Prof. J. J. Thomson says, "In the dark the spark does not always pass even when the potential difference is nine times that required to produce a spark when the field is continuous; in the arc light a potential difference, only a little greater than the minimum required to produce a spark, is always effective; daylight also produces a very perceptible diminution of the *lag*. Now, if you use the multiple spark-gap, you will not have much reason to complain of noise, and in so doing you obtain relative silence without any sacrifice of efficiency.

The fourth question that calls for an answer is "Of what size must the spheres be that form the knobs of the multiple spark-gap? Is it better to use large or small knobs? Now, the results of Baille's [2] and Paschen's [3] experiments have been analyzed by Schuster, who has, by the aid of Kirchhoff's Theorem of Electrical Distribution over Spheres, shown that the more irregular the electric field (*i.e.*, the smaller the spheres), the greater is its maximum electric intensity before the spark passes. It must, however, be remembered that inequalities in the electric field between small electrodes is reduced but not altogether annihilated by the process at work during the lag.

The fifth proposition to be considered is "Have we any reliable guides that will help us to determine the nature of the substances to be used to form the electrodes?" Now the experiments of De la Rue and Hugo Müller [4] have shown that sparks pass more readily between aluminum or magnesium electrodes than between those formed of any other metal. The explanation of this phenomenon is that the spark potential, which has a very close relation to the cathode fall of potential, is to some extent determined by the absorption capacity of the metal for hydrogen, and is inversely proportionate to the amount of disintegration produced in unit time by incandescence. The advantages which aluminum electrodes offer as a source of very efficient ionizing spark-gap radiations must here be taken into account.

The sixth point that demands our attention is Thomson and Mey's observations as to the abnormally small cathode fall of potential noticed when the electrodes are new, and the subsequent increasing drop with prolonged use. Warburg ascribes this effect to the presence upon the new electrodes of a microscopically thin layer of oxide which is removed by the disintegration which goes on during use. Thomson has shown that there is very little disintegration of aluminium electrodes in nitrogen and air, but a large amount in monatomic gases, such as helium, argon, and mercury and cadmium vapor. Even a trace of oxygen present as a contamination in nitrogen, seems to increase disintegration to an appreciable extent. This effect of oxygen is in some measure reduced by aquous vapor when present in minute quantities, but not altogether prevented. It is evident, therefore, that the current efficiency of the spark-gap can be maintained only by the periodic replacement of the old disintegrated knobs by freshly burnished spheres.

The effects upon spark-potential of the *nature of the gases in the spark-gap* has long engaged the attention of physicists. Compound gases and the halogens in which dissociation can very readily be produced lower the spark-potential; but their effects upon the electrodes have to be considered. Natterer found that among elementary gases the spark-length was superlatively greater in monatomic vapors (for the same potential-voltage than in those of other valencies. The ratio of potential difference between the electrodes in air as compared with N, H and O are as follows: 34 : 25 : 20 : 32. Arons has observed that a variation results from the alteration of the metal used to form the electrodes. For aluminum terminals, the spark-potential in air as compared with nitrogen is as 13 : 9. The advantage of employing pure nitrogen is therefore obvious.

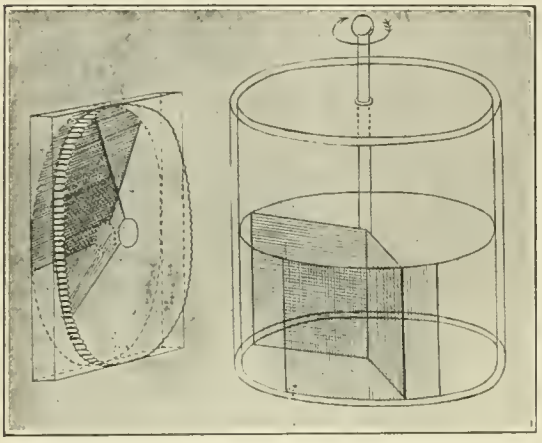
Faraday's experimental researches have shown that there is a distinct advantage in imprisoning the gas in the spark-gap and preventing its diffusion into the surrounding air. The electrical instability of a gas, ionized by the passage of a spark, is not in such a case entirely abolished till several minutes have elapsed. In an exposed spark-gap, on the other hand, diffusion rapidly takes place, and a fresh supply of unionized air obtrudes itself between the terminals of the discharger. I may incidentally refer to a question that may have engaged the attention of some here present. It is, whether there is any advantage in using a compressed air spark-gap. The answer must be a most emphatic negative. It is not the dielectric resistance of the air, for this only serves to increase its capacity for insulation, but the dissociation of the gaseous molecules produced by ionization which directly favors conductivity, and by so doing increases the output of current. The only reasonable plea that has been brought forward for the compressed-air spark-gap is that it imprisons the gas already acted upon and rendered conductive by the spark, and prevents its diffusion. The same, however, can be done by imprisoned air at normal or slightly subnormal atmosphere pressure without any such sacrifice of efficiency.

1 Sitz. A Rad. der Wissenschaften, Berlin XII, p. 223, 1896.
2 Annales de Chimie et de Physique (5), XXV, p. 486, 1882.
3 Wied. Ann., xxxvii, p. 79, 1889.
4 Phil. Trans., 139, Part I, p. 93, 1898.

In summarizing the experiments which have a bearing on the proper construction of an efficient spark-gap, allow me to say:

To obtain the maximum discharge it is necessary to employ a multiple spark-gap, whose discharging knobs are spheres of polished aluminum arranged horizontally. A leak must also be provided between the adjacent spheres. This may be an electrolytic solution of high resistance, but it is more satisfactory to employ a coil

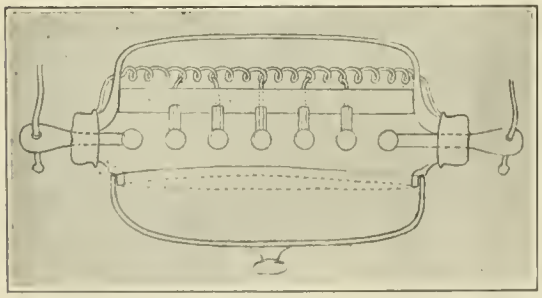
Fig. 1.



of self-induction. To protect the knobs against rapid deterioration with use, the entire spark-gap may be hermetically sealed in a crystal globe or glass egg filled with absolutely pure anhydrous nitrogen. Such a spark-gap is diagrammatically represented in Fig. 1.

Remember that if spark-potential determines the ampèrage of the derived current, it is the capacity of the condensers that influences its frequency. If you desire to vary the frequency

Fig. 2.



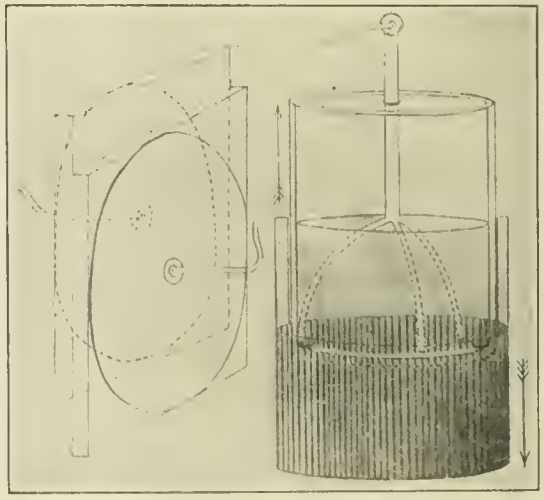
of the currents you must employ condensers of variable capacity.

In the paper giving the results of my experiments to determine the effects of form and winding on resonance phenomena, I incidentally mentioned the fact that the capacity of a condenser could be varied by altering the relation of the armatures to each other. This can be done either by raising or lowering one armature so as to alter its position with respect to the other, or by rotating it through an arc, less than a semicircle. This principle applies both to the case of the flat condenser and that of the Leyden jar. Figs. 2 and 3 will show you how this is effected. In Fig. 2 the area of the electrically-opposed condensatory interfaces is altered by raising or lowering one armature while leaving the other unaltered. In Fig. 3 the same result is arived at by the rotation of one armature with respect to the other.

This procedure will allow you to produce a variation within very extensive limits—limits fixed only by the maximum capacity of the two armatures when in perfect electrical apposition to each other.

It is not enough, however, to look to your spark-gap and condensers, while leaving the metallic connection between them a prey to the errant winds of fancy. You will remember that in proportion as the frequency of an alternating current becomes greater the more does the current tend to confine itself to the surface of the con-

Fig. 3.



ducting wire. In a current of very high frequency, like that generated by the oscillatory discharge of condensers, the so-called skin resistance has to be provided for. This necessitates the use of hollow metallic tubes to connect the internal armatures of the condensers with the spark-gap. You are thus able to conserve a maximum of the current and convey it by induction into the circuit of utilization.

One other point. See that the wires leading from the secondary of your transformer or induction coil are connected directly with the two outermost knobs of your multiple spark-gap, and not to the rod leading to the internal armatures of your condensers. As I am afraid I have already exceeded my space limit I will not go into the whys and wherefores of this question, which complete my remarks on constitutional details of the circuit of generation; I shall leave to some future occasion the consideration of improvements that can be made in the circuit of utilization.

REPORT ON THE USE OF STOVAINE.[1]

BY C. G. COAKLEY, M.D.,
OF NEW YORK.

Stovaine was discovered by M. Forneau of Paris, in studying the properties of the amino tertiary group. It is a hydrochloride of α-dimethylamine β-benzoylpentonal.

Chemical Properties.—Stovaine crystallizes in small brilliant scales, melting at 175° C., and is extremely soluble in water, methyl alcohol and acetic ether. Absolute alcohol does not dissolve more than one-fifth of its own weight. It shows slightly acidic properties to litmus, but is neutral to methyl orange.

Its aqueous solutions are precipitated by all alkaloidal reagents, and are sterilizable by heat. On being boiled for a long time (say for an hour) the dissolved stovaine is not altered in any respect, and after evaporation is found to be intact. These solutions do not suffer decomposition at a temperature as great as 115° C., when boiled in a sterilizer for twenty minutes, but at 120° C. they slowly decompose.

Briefly, the stability of stovaine is so superior to that of cocaine that no comparison exists between the two products in this respect.

The writer can attest to the fact that frequent boiling of a ten per cent. solution has not diminished its local anesthetic properties.

Five grams of stovaine were received on January 12 of this year. The entire amount was dissolved in 50 c.c. of sterile normal saline, thus making a ten per cent. solution. This was kept as a stock, some of which was applied to the nose or throat, where operative procedures were undertaken. From it also a 2 per cent. solution of stovaine was prepared for use as a spray in the nose and throat for diminishing the sensibility of the parts in the usual manipulations necessary for purposes of diagnosis.

Two similar solutions of cocaine—one a ten per cent. and the other a 2 per cent.—were employed for the purposes of comparison.

Most of the minor operations common in office practice occurring in our specialty have been performed under both cocaine and stovaine during the past six weeks. In all cases where two operations have been done on the same patient, stovaine was used in one and cocaine in the other, under as nearly as possible similar conditions. Careful questions were asked of each patient to determine which was the better anesthetic and which gave the least disagreeable symptoms.

My observations have led me to the following conclusions:

1. That stovaine as a local anesthetic is apparently equal to cocaine.

2. That the time necesary for acquiring local anesthesia is the same as that of cocaine.

2. That it apparently does not contract the nasal mucous membrane to so great an extent as do similar solutions of cocaine. This is at times a disadvantage when the nasal passages are desired to be widely opened for more thorough inspection of the cavities; on the other hand, it is oftentimes an advantage, as in snaring of redundant tissue by not too greatly shrinking it, and therefore making it more easy to be removed.

4. Stovaine does not produce nearly so great a sense of constriction in the pharynx as that which is produced by cocaine. In this respect it has a decided advantage over cocaine, especially in those patients to whom the symptoms of constriction with constant desire to hawk and remove a supposed foreign body are very distressing.

5. Solutions of stovaine have a peculiar odor of stale fish, which has been annoying to some of the patients.

6. Some of the patients have complained that solutions of stovaine are more bitter than similar solutions of cocaine.

7. We have seen no toxic effects following the use of stovaine; there have been no secondary headaches or feeling of lassitude after the local anesthetic effect of the drug has disappeared; I am also of the opinion that the secondary swelling of the mucous membrane following the use of stovaine is less than that which occurs after cocainization.

8. It is but fair to say that during this period when cocaine was employed we had no case of marked cocainism.

[1] Read before the Section on Laryngology, New York Academy of Medicine, February 22, 1905.

ON THE TREATMENT OF CHRONIC OSTEOMYELITIS AND OF CHRONIC BONE CAVITIES BY THE IODOFORM WAX FILLING.[1]

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OF NEW YORK;
ADJUNCT ATTENDING SURGEON, MOUNT SINAI HOSPITAL, NEW YORK.

It is a basic principle in surgical technic never to leave cavities or dead spaces in a wound if it can be avoided. In most cases where we leave behind cavities, these have collapsible walls, so that, after a short time, the walls come into contact with each other and the space becomes obliterated. As examples of cavities of this kind may be mentioned the bed from which a tumor has been removed or the dead space left after the evacuation of the contents of an abscess. Sometimes a part of the wall of the cavity is rigid, as in the chest after an empyema operation; we then seek to make the cavity smaller by causing the maximum of expansion of the lung, and if this does not suffice, we resect a number of ribs so as to collapse the soft parts of the chest wall and thus obliterate the space that has remained.

It is far different, however, with cavities left in the bones, and more especially in the long bones after operations for disease in those structures. Bone cavities have rigid, unyielding walls, in which blood and secretions are only too apt

[1] Read at the February Meeting of the Surgical Section of the New York Academy of Medicine.

to collect and stagnate and to serve as a nidus for bacterial growth. In deficiencies in the bony skull, osteoplastic methods are often successful, but in the case of the long bones, they are seldom feasible. In the majority of the cases, these cavities in the long bones have to heal by the slow and tedious process of granulation; repeated operations and months of treatment are often necessary to obtain healing. The best way to keep these cavities relatively aseptic and thus favor the growth of healthy granulations is to change the dressings as infrequently as possible.

From the very earliest times, attempts have been made to obliterate these cavities by filling them with tissues from some other part of the patient's body, or by the introduction into them of foreign substances. Large pieces of bone or bone chips, muscle or fat were taken from one part of the patient's body and introduced into the cavity, but successes were few and failures many. Later, the moist blood clot method of Schede was highly recommended. The good results with the method were, however, rare and the procedure has been almost entirely abandoned. The skin flap method recommended by Neuber has occasionally yielded good results, but in many cases there is not sufficient skin for the formation of satisfactory flaps. Bone derived from animals and prepared in a number of ways was next tried but without success. Attempts were made to fill the cavities with a variety of foreign substances such as glass, ivory, rubber, cork, lead, sponge, celluloid, plaster-of-Paris, gold-foil, copper amalgam, gelatin, etc., but satisfactory results were obtained in only exceptional cases. The materials introduced almost always acted as foreign bodies, caused increased secretion and suppuration, and were either extruded or had to be removed.

During the last three years, Mosetig-Moorhof, of Vienna, and his assistants have published the results that they have obtained with an iodoform wax filling for bone cavities. Impressed by the claims of these authors, the writer determined to give the method a trial.

The steps of the procedure as described by Mosetig-Moorhof, are the following: The limb is prepared in the usual manner and rendered bloodless by the Esmarch constrictor. The bone is exposed, the periosteum turned back, and all diseased bone removed with the chisel, spoon, etc., until the walls of the cavity are formed by healthy bone. The cavity is then thoroughly washed out with sterile salt solution, and its walls rubbed with sponges wet with two per cent. formalin solution. The bleeding from the bone is next stopped by hot irrigation, the insufflation of sterilized hot air, and tight packing with gauze. The soft parts are now carefully examined, all diseased skin, sinuses, etc., excised, until the wound in the soft parts is formed by healthy tissue. As soon as the bleeding from the bone has entirely ceased the filling is introduced. This filling consists of a mixture of 60 parts of iodoform, 40 parts of spermaceti and 40 parts of sesame oil. The mixture is prepared by heating the spermaceti and the oil of sesame over a water bath for one-half hour, then adding the iodoform to it, and preserving the mixture in a sterilized bottle or special retainer. When the filling is to be introduced, the mixture is melted by immersing the bottle in hot water , and while still fluid is poured into the cavity, until the latter is entirely filled. Within a few minutes the mixture solidifies. The periosteum, or, if this is impossible, the soft parts are closed over it, the skin wound closed with or without drainage, and a dry compression bandage applied. The Esmarch constrictor is then removed. The wound is dressed after seven to ten days and in the majority of the cases will be found to have healed by primary union. If the wound has been drained, which is advisable in most cases, the sinus left will heal in the course of a few weeks. In a certain number of the cases, the wax mixture is slowly extruded in the course of several weeks by the active growth of new tissue around it, and the mixture seems to act as a powerful stimulus to this growth. Iodoform poisoning was never seen, in spite of the large percentage of that substance in the mixture, as the iodoform is very slowly absorbed out of the filling, but traces of iodine were sometimes to be found in the urine for the first two or three days after the operation. Healing usually occurred without much elevation of temperature or pulse, although occasionally there was observed a marked rise of both temperature and pulse for one or two days.

As a result of his investigations and experiments on animals, Mosetig-Moorhof was able to determine that the wax mixture slowly disappears as new tissue grows into it from the bone, and the gradual disappearance of the mixture could be nicely followed in X-ray pictures.

Mosetig-Moorhof declares that his method is applicable to all forms of chronic bone disease inclusive of the tuberculous variety, and also to chronic tuberculous affections of the joints, but the method is not applicable to acute bone disease in which the cavity cannot be rendered aseptic. In order to insure successful results, great care must be observed that the walls of the cavity shall consist of healthy bone, and that the soft parts of the wound shall be thoroughly freshened; the oozing from the bone must be very carefully stopped before the wax mixture is inserted, so that no blood shall collect between the wax mixture and the walls of the bone cavity.

During the past year, the writer has used this method on the surgical service of Dr. Lilienthal at the Mount Sinai Hospital in three cases of chronic osteomyelitis of the hip; four of chronic osteomyelitis of the femur, one of tuberculous disease of the tibia, one of chronic disease of the ulna, and one of chronic tuberculosis of the bones of the elbow-joint. All of the patients had been repeatedly operated upon in various hospitals, including our own, without permanent cure.

The results that I have obtained with the method of Mosetig-Moorhof, although not as good as those of this author, have shown much improvement over former methods of treatment, so that I feel warranted in recommending the method for further trial. I think it probable that with increasing experience the various steps of the method may be much improved upon.

It is better to remove the Esmarch constrictor from the limb before the wax mixture is introduced so that the hemostasis in the bone cavity may be more perfect and the oozing from the bone be perfectly controlled when the normal circulation is established. In the second place, I have not made use of dry hot sterilized air in controlling the oozing from the bone cavity because this required more complicated apparatus than I had at hand. The bleeding has been entirely controlled in our cases by irrigation with hot saline solution, irrigation with peroxide of hydrogen, and packing of adrenalin and dry sterile gauze. In our cases the wax mixture often did not harden as quickly as claimed by Mosetig-Moorhof, and considerable time was often lost in waiting for the mixture to become firm. During this time slight oozing was apt to occur from the bone and to leak through the mixture while it was still semi-fluid. Even if the filling seemed fairly hard, the central portions were still soft, so that considerable of the softer portions of the filling were squeezed out when the soft parts of the wound were being closed, and the solidity of the filling was thus rendered imperfect. I now pour the melted mixture into a basin of sterilized cold water and mold it with the hands until it has about the consistency of putty. I then press bits of the mass into the walls of the cavity and thus stop the very slightest oozing from the bone and fill up all small spaces (in the same way that we use Horsley's bone wax in cranial surgery). When this has been done, the cavity is lined by a thin layer of wax and is absolutely dry. Then the cavity is tightly packed with the filling in the same way that the dentist fills a cavity in a tooth.

I have never used more than 20 per cent. of iodoform in the wax mixture because in my earliest cases I had one of well-marked iodoform poisoning. I have tried also to use a mixture of iodoform and spermaceti without the oil, and a mixture of iodoform and paraffin without the oil, but the results have not been as good as those obtained with the mixture of equal parts of spermaceti and oil containing 20 per cent. of iodoform.

In three of the cases here reported there was a considerable rise in the temperature and pulse, after the operation, which lasted for from two to four days. All but two of the patients had small quantities of iodine in their urine for one or two days after the insertion of the filling; in one case there were marked symptoms of iodoform poisoning for twenty-four hours. The patients almost uniformly complained of a burning sensation in their wounds for a few days but thereafter declared that they felt better than after any one of their previous operations.

In six patients, the wounds healed by primary union except for the drainage opening. In four of these cases, the filling remained in situ; in one, a small part of the wax was extruded and the wound then healed up; in the sixth case, all of the filling was extruded in the course of two weeks and the wound then rapidly closed.

In a patient who had a large cavity occupying almost the entire tibia, the result of a tuberculous osteomyelitis and numerous operations, I introduced the filling, but was able to close only about two-thirds of the wound in the soft parts. The wax filling remained in place for about two weeks and was then gradually pushed out of its bed by the active growth of granulations around it. The shell of bone that was left was very thin and during the manipulations incident upon the last operation a fracture had occurred. At the end of four weeks the fracture was firmly healed, and six weeks later, the large wound was entirely healed and the cavity was filled with new tissue so that the scar was hardly depressed. During the healing, the discharge was serous or seropurulent in character and small in amount. This case demonstrated the powerful stimulating effect of the mixture, and the rapidity of growth of new granulation tissue. I have observed this same effect in other cases. In three of the cases that I operated upon the method resulted in failure. One patient had a large cavity in the lower end of the femur after several operations for osteomyelitis two years before. In spite of three operations, I never succeeded in rendering the cavity aseptic; after each operation the wound reopened and the wax was extruded. At the present time, the filling inserted at the third operation is being gradually extruded with considerable purulent discharge. In a case of chronic disease of the ulna, the filling remained in place for a number of weeks, but on reopening the wound, at a second operation, it was found that a sequestrum had been left behind. After the last operation a sinus has persisted for four weeks and although no bare bone is to be felt and there is very little discharge, the operative procedure must be considered a failure.[1] In a third case, one of sinuses of the hip-joint of many years' duration, the wax filling gradually escaped and a sinus still persists.

In the case of a child of six years, who had several sinuses left after resection of the hip-joint for suppurating tuberculous arthritis (the sinuses had persisted for two years in spite of repeated operations, so that the patient was considered incurable), the wound was entirely healed three weeks after the filling had been introduced. Owing to a misunderstanding, the little patient was allowed to walk around without a hip-splint, so that direct pressure was made upon

1 After the above was written the wound closed rapidly. It was healed in three weeks, and has remained healed up to the present time.

the wax filling. Some months later a sinus reformed from which the wax is being extruded at the present time, but there is little discharge. The general condition of the child, which was very poor when she was operated upon, is now excellent, and I have little doubt that the sinus will soon close. This case must, however, be included among those in which the operation was not or was only a partial success.

With the exception of the cases just mentioned, all of the other patients have remained well up to the present time, the most recent case was operated upon two months ago and the first case more than three years ago.

A careful consideration of the results that I have obtained in the cases I have operated upon, has convinced me that the method of Mosetig-Moorhof is worthy of a more extended trial than it has received up to the present time. It must be remembered that the cases in which this operation was tried were cases in which all other methods of treatment had failed. The general condition of the patients is very much improved because the long-standing and continual suppuration is stopped. If the operation is successful, the patient's stay in the hospital is much shortened. Even if the filling is extruded, the healing process will be much hastened.

Success will depend to a great extent upon the thoroughness with which the operation is done. The procedure is a slow and painstaking one, and it is not unusual for the operation to take one to two hours. If the patient's condition does not allow of so prolonged an anesthesia, the operation may have to be done in two stages. The greater the care that is taken in the preparation of the bone cavity for the filling, the better will be the results that will be obtained. I believe that with increasing experience, the cures obtained by this method of operation will become more and more frequent. A more detailed account of my experiences is reserved for a future publication.

THE SIGNIFICANCE OF EPIGASTRIC PAIN.

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The epigastric space is, for convenience, divided into right and left epigastric, or right upper and left upper quadrants.

Permit me, for just a moment, to refresh your memory as to the anatomy of these regions, before proceeding further. The left epigastric space contains the largest portion of the stomach; the spleen, the greater portion of the pancreas, and a portion of the upper lobe of the liver; the right epigastric region is particularly rich in anatomical considerations, containing, as it does, the pyloric end of the stomach, the duodenum, the greater portion of the liver, the gall-bladder, the cystic, the hepatic and the common bile ducts; a portion of the ascending and transverse colon; and the head of the pancreas with the opening of its chief duct: the duct of Wirsung.

We can readily observe, then, by this brief summary, that by far the chief causes of pain in the epigastrium are incident to the diseases of the liver, stomach, and the gall-bladder and its ducts.

So much greater are the possible sources of epigastric pain due to the diseases of these organs, that we will consider the subject chiefly from such standpoints; and, first of all, I will consider the methods of examining patients complaining of epigastric pain.

I regret to note the carelessness and indifference shown to such patients by their medical attendants. When a person enters your office, you have every reason to believe two very important propositions. First: He is ill, or thinks he is ill, and needs medical advice and attention. Second: He honors you by coming to your office, and, by so doing, he carries the inference that he has confidence in your medical ability, and desires your advice, else he would have applied to another on exactly the same premise.

If, then, you give that patient the privilege of a thorough examination, you are not only in position to proceed to treat and advise him more intelligently, but you have substantiated and strengthened his confidence, which first brought him to you, by your careful interest in his condition, to say nothing of the benefit you have derived yourself by improving a clinical opportunity, since every case, properly treated, after a thorough examination, presents some very interesting and instructive clinical points, which increase your own usefulness.

You cannot, intelligently, tell a person the cause of pain in the stomach, or the epigastric region, by looking on the outside clothing, or by examining his pulse or tongue. Request the opportunity to see the surface of the body; it may tell you much. You can note, then, if there are distentions or depressions, whether any prominences move with respiration, as in large gall-bladder involvements. You can note epigastric pulsation, if present; you can detect jaundice in the portion of the body covered by the clothing more readily than on the face.

Palpation reveals fully as much. It determines whether the prominences noted are hard, suggesting tumors; or soft, indicating distention by gas or fluid. You can usually feel the free border of the liver, beneath the right costal arch. You can, with a little practice, find the kidneys on either side, and it might be well to note in passing that the left kidney lies one-half inch higher than the right, and that the position of the latter is directly back of the gall-bladder. Not infrequently, some pathological condition of the kidney gives rise to epigastric pain, and, pressure on the gall-bladder increasing it, one thinks he has a gall-bladder involvement, when, in fact, the trouble lies behind.

Epigastric pulsation used to be considered pathognomonic of carcinoma or pyloric ulcer, but to-day we know that in spare subjects, where

the abdominal walls are thin and free from fat, and where the chest wall is flat, we can see, not infrequently, epigastric pulsation when there is no pathological condition in the upper abdomen.

I will merely mention auscultation and percussion in passing. By auscultation we can often determine the metallic note of gaseous distention of the stomach, suggesting a fermentative process, due to faulty evacuation of gastric contents, and we immediately think of duodenal or pyloric stenosis, due to the cicatrices of a former ulcer; or of a motor insufficiency that allows the stomach to sag below the point at which it can be emptied by its impaired contractions. Percussion only emphasizes and confirms the conditions found by auscultation. After a little practice, one can readily detect the percussion note of a distended stomach from a dilatation of the transverse colon, and can also recognize a normal area of hepatic dulness, and quickly note any increasing or diminishing of this area.

To the laity, the term "stomach" includes all the space from the borders of the ribs to the brim of the pelvis, so that when one comes to you complaining of a pain in the stomach, it may be wise, perhaps, to ask him to put his hand on the point of pain. You may be surprised at his knowledge of anatomy, both from the standpoint of ignorance, as well as intelligence, and it requires no small amount of nice discrimination, sometimes, to get any information regarding the character, location, duration and degree of discomfort.

So much, then, for introduction and generalities.

By far the commonest complaint that the physician will hear from patients is, that they have "indigestion." This expression is extremely vague and indefinite, for nearly all conditions of the stomach or biliary apparatus are associated with some form of indigestion, so we must draw out our information piecemeal, as it were.

Much information can be assumed from the social and physical surroundings of patients. For instance: If the patient is an anemic woman in the first three decades of life, and is nervous, we are reminded of a gastric ulcer. The pain, in the typical case of gastric ulcer, is an acute, sharp, "sore" pain, which has increased on taking anything of an acid or saccharine nature into the stomach, is sometimes associated with vomiting, and occasionally with the emesis of blood or bloody material. The pain is occasionally (in about one-third of the cases) referred to a corresponding point in the back, and the history will bring out the fact that the patient is extremely nervous, irritable, impatient, and altogether petulant. The history will also show that her trouble is of long duration. The stools are often of a tarry consistency, and, upon being dissolved in cold water, hemoglobin can be freed. There are, usually, intervals (especially between meals) when the pain is constant and of a boring nature, accompanied by eructations of gas, and, at times, the intensely acid fluid contents of the stomach. They will tell you that at such times, the taking of some bland food, of the drinking of considerable water, will afford relief. The total acidity of the stomach contents, if examined, will be found to be greatly increased, some two or three times the normal amount.

This condition is to be differentiated from impaired motility of the gastric walls, cholecystitis, and carcinoma. In the first, the analogy is extremely close. Men suffer more commonly, however, than women, and the condition has been noted in all ages above twenty years. The main difference is in the character of the pain, the time it occurs, and the absence of bloody vomit or black stools. Impaired muscular motility, or gastric atony, is due to an innervation of the gastric muscle, is common in the aggressive, intense, energetic type of people, and is the result, directly, of an exhaustive and bankrupt nervous system. The voluntary muscles and the brain have had more than their share, and the passive, easily imposed upon stomach, has been slighted.

The pain is more a sense of weight or oppression, but may become a dull ache, and, at times, even an acute boring pain. It usually occurs midway between meals, and is more common among those who drink large amounts of water with their meals. Vomiting is rare. Patients will tell you that they scarcely ever vomit. Drowsiness and mental dulness is common, and also, not infrequently, are periodic attacks of terrific headaches, which are the direct result of disturbed metabolism.

Impaired motility and gastric dilatation quite naturally divides itself into three general classes of degree and gravity:

1. Simple atony, where the motility is lessened without any corresponding dilatation, and where digestion is normally performed. This condition is accompanied by a feeling of discomfort, but is not attended with nausea or vomiting, and is usually readily overcome by a tonic treatment aided by judicious eating, and lessened nervous activity.

2. Atonic dilatation follows closely on the heels of simple atony. It is due to the atrophy of the gastric muscle, and the tone is impaired or lost, so that the impaired stomach is unable to empty itself, and sags away down into the abdomen, sometimes descending as far as the brim of the pelvis. The normal contents are increased from about three pints to four quarts or more. Digestion is impaired; a lavage early in the morning will bring up particles of food ingested the night before. This material lies in a line below the point of evacuation, and ferments, giving rise to gaseous formation which, in turn, dilates the weakened muscle wall, and the dilatation drags on the nerve endings, thus producing the pain. The contents of the stomach in this condition is typical. Should lavage be performed, the surprise is great at the enormous quantities of fluid that these stomachs can hold.

On emptying it, by inverting the tube, the contents form in three layers; first, a thick, frothy layer, composed chiefly of yeast ferments, one of a dark brown liquid, and one of undigested detritus, sometimes containing particles of food, and again assuming more the form of an insoluble powder in solution.

3. The third class is known as a secondary dilatation due to pyloric stenosis, contracted sphincter, cicatrices of old ulcers, or from inflammatory adhesions, often found in association with the acute gall-bladder troubles. The symptoms are very much the same as outlined in the foregoing class, but are relatively increased.

I know of no condition more common, and none more worthy of careful study and intelligent effort to cure.

In the simple atony cases, the simple tonic treatment, as has been suggested above, combined with caution regarding diet and lessened nerve expenditure, will not infrequently be followed by gratifying results. But if a physical examination reveals a largely dilated and distended stomach, the condition passes from a simple case to an exceedingly perplexing one.

As we have noted above, in atonic dilatation, there is a pathological condition in the gastric muscles, atrophy has robbed the muscle of its tonicity, and it would be foolish indeed to presume that we can restore that tone wholly by medical treatment. Let us, for a moment, consider this phase of treatment.

The capacity of the normal stomach is about three pints; the most dependent position of the stomach, after a meal, is about three inches below the pyloric opening; the contour of the greater curve is a gradual incline, which favors the emptying of the gastric contents into the duodenum, when stimulated by the contractions during digestion. This is easily accomplished in the healthy organ, because the tone of the muscle is sufficient to bring the most dependent position of the filled stomach to a point of drainage into the duodenum.

In the stomach where there is an atrophic change in the muscle fiber, the muculature of the stomach is greatly thinned, sometimes no thicker than the serous or peritoneal covering; it is incompetent to bring the greater curve to a point of duodenal drainage, even if there were no sagging of the greater curve, but the lower border of the stomach in this condition, instead of being three inches below the pyloric opening, is sometimes six, eight, or even ten inches below any possible point of evacuation or drainage. What, then, is the natural result? A portion of the meal—the upper portion—is brought up to the level of the duodenum during the active contractions of the stomach, which have been stimulated by the taking of food and by mastication; at first, these contractions are firm and good, and a part of the meal is emptied into the intestine. As digestion goes on, however, the weakened gastric muscle fails to respond to the stimulus, and each succeeding contraction becomes shallower and shallower, finally ceasing altogether. The presence of the unemptied contents sags the stomach to its lowest possible point; this is made possible, first, because the impaired muscle fibers are exhausted, and, second, the food remaining acts as a weight, carrying the lower border to the limit of its laxity; and after a time fermentation begins, by reason of the absence of the bile. The meal has been treated to the gastric ferments, but has not been passed on to be acted upon by the other juices of digestion, so that digestion, which was well begun, is interrupted, the fermentation gives rise to gas, the gas continues the process of distention, and, by dragging on the nerve endings, causes pain. There is a layer of fermenting, gas-producing material at this time, in the bottom of the stomach. What, then, could possibly be the result of medicine put into that fermenting mass? Would it not become a part of it? If it stopped the fermentation, could we hope that it would stimulate tone to that impaired stomach wall to the point of emptying itself? If we can reasonably hope to accomplish this by medicine, I can readily see a hope for these unfortunates by medicinal treatment. But, so far, in my experience I have failed to get the results, and I feel that I have found the cause of my failure.

Carcinoma of the stomach occurs in about the equal ratio in men and women. The age of onset is usually above forty-five years, is announced by a rapid loss of weight, and an acute pain in the epigastrium; the symptoms usually precede the vomiting of bloody material. The usual site of the carcinomas is at the pyloris, and, by recalling your anatomy, you will remember that there are from three to five lymphatic glands in that region, and we know that the cancerous process manifests itself either in or about the lymphatic supply of a part, or develops directly in the lymphatic area. The rapid loss of weight in a person over forty-five years, with progressive anemia and symptoms of pain in the stomach, of a boring acute nature, with or without vomiting of blood, is sufficient to warrant a suspicion of carcinoma.

A test meal is very valuable to eliminate the "guess" of your diagnosis. If you find hydrochloric acid absent, with lactic acid present in quantities of from three per cent. to six per cent., and if the microscope shows muscle fibers with blood cells and the Boas-Oppler bacilli, the case can safely be regarded as malignant.

We have come to regard carcinoma of the stomach a curable disease under certain conditions. When the test meal reveals absence of hydrochloric acid, the presence of lactic acid with blood-cells and the Boas-Oppler bacillus, but where there is no tumor definable, or the tumor, if present, is small, an exploratory operation is the thing to advise. If after opening the abdomen, the condition be found in the early stages, or even in the more advanced stages, if meta-

stasis has not occurred, much benefit and comfort, and sometimes cure, apparently, follow removal of the pylorus.

W. J. Mayo states that the average length of life after carcinoma can be diagnosed, is about 205 days. The length of life after his operation for removal of the pylorus, is from two to five years of a very comfortable existence, and not infrequently does death occur from some other cause aside from carcinoma, or the immediate results of its removal; and I feel safe in prophesying that in the next ten years, pylorectomy, or some better surgical procedure, will be the recognized treatment for carcinoma.

One thing is certain, if we would obtain the best results, we must improve our diagnosis, so that we can intelligently detect a carcinoma of the stomach before tumor formation, and if we can do this and confirm it by exploration, it is comparatively easy to convert the exploratory opening into an operative one, and do some surgery on the stomach. In these cases, as noted above, they live about 205 days, without operation after carcinoma has been diagnosed, and with operation, they live from two to five years, so that it would appear that they have nothing to lose and everything to gain.

I will not take your time here to describe the gastric contents examination; you can find it accurately described in the works on diagnosis. Suffice it to say, it is very simple.

To summarize a few of the pains we have considered in the foregoing:

The pain of ulcer gives a history of long duration, is usually in women under thirty, is frequently associated with vomiting of blood, or the passage of blood in the stools: the pain can be located by pressure, and the nervous symptoms are pronounced. The pain is almost continuous, and extends over a long period of time, is increased by taking anything acid or saccharine into the stomach, and is relieved by taking bland food, or sometimes water, during the pain occurring between meals.

In disturbances of impaired motility, the age is not so conspicuous a symptom. The pain is not so constant, there being intervals when comparative good health is enjoyed; it is dull and oppressive, more than acute. There is no history of nausea, in fact, vomiting is very hard to accomplish. The vomitus never contains blood or bloody streaks, but consists of yeasty ferments, a large amount of dark fluid, and undigested material.

In carcinoma the pain is continuous; there is a rapid loss of weight, early cachexia, vomiting of bloody discharge, presence of a tumor, and rapid decline.

Gall-bladder disease presents as many phases as a kaleidoscope, but there are certain points that serve to keep us right. The pain is of a severe colicky nature, and, as a rule, is spasmodic. It is not long ago when we were inclined to call every spasmodic pain in the epigastrium, gastralgia. I wish to say that by far the commonest cause of spasmodic pain in the epigastrium is gall-bladder disease. We have neuralgia only in the nerves exposed to trauma or to the elements; it is not rational to expect neuralgia to occur in any other locality. The pathology of neuralgia is wholly concerning the neurilemma; the outer sheath of the nerve is exposed to a low temperature, and when warmed the vasomotor apparatus is unbalanced, and a consequent hyperemia occurs which congests the membrane, making it more dense; this lessens the lumen of the nerve canal and causes pressure of the neurilla on the nerve center, and we have pain. The same operation occurs in trauma of a nerve, but this does not explain, pathologically, the occurrence of gastralgia.

I will admit the involvement of the nerves of the stomach from an extension of some perigastric or gastric inflammation but not simple neuralgia, as is commonly accepted, and I would advise a change in the nomenclature of stomach pains, and, in the future, spell gastralgias so that they are pronounced gall-bladder diseases. Then, find out just what condition exists but do not be deluded by the gastralgia idea any longer.

I have had enough surgical experience with this region, and I have seen enough of these conditions to convince me that the foregoing statement is, in the main, truth.

The majority of medical men have been taught that there can be no liver or gall-bladder disease where there has been no jaundice. They put all their clinical significance on jaundice. This is faulty; jaundice occurs in about 28 per cent. only of all cases of gall-bladder disease, and when it is present, you have an obstruction of the flow of the bile from some cause mechanical, as in the case of a gall-stone, or pathological, caused by the closure of the lumen of the common duct by inflammatory process, and that clears up only 28 per cent., or, at most, one-third of these vague stomach cases. Jaundice is not a necessary symptom of gall-stone disease. I consider the pain the most significant, and I will present it to you under head-lines, to endeavor to make it more lucid and clear.

It occurs spasmodically at first, and is of a boring, twisting character. This is produced by an extension of inflammatory condition to the lining of ducts, or by the passage of a gall-stone through the ducts. This pain is often referred to the right shoulder as a tender spot; sometimes this spot is easily covered by a silver dollar. The pain is exaggerated during digestion, since contraction of the gall-bladder occurs synchronously with the contractions of the stomach. It may completely subside and not return for many months, and many are carrying slumbering gall-stones in their gall-bladders to-day without their knowledge, but as long as they don't know it the gall-stones cannot hurt them.

In the inflammatory conditions, especially if

associated with, or caused by, the impaction of a stone in one of these ducts, there will be chills and fever, perhaps occurring so regularly that you will diagnose your case malaria. I recently saw a patient with a very prominent man. This patient gave history of acute colicky spasmodic pain in the epigastrium, followed by chills and fever quite periodically. The doctor said to me, in all seriousness, "I guess I'll give this man some quinine." He added, "His cellar is full of water," as if to carry conviction. I will venture the opinion that the quinine did not relieve the chills and fever, nor reduce the water in the man's cellar, because I am sure there was a gall-bladder disease which was responsible for all that the man had complained.

Headache, loss of weight and periodic attacks of these acute, colicky cramps, point strongly to the presence of gall-stone. If they come to operation, you may find, as I did a short time ago, the gall-bladder distended and full of black, ropy, mucobile, the ducts open and no calculi of the biliary apparatus. The lining of the gall-bladder and ducts was congested and thickened sufficiently to impede the flow of bile, but not enough to prevent its current entirely. At first thought, one would feel that operation was not indicated. But the stomach was adherent to the parietal abdominal wall by bonds of plastic exudate which had been poured out during some previous inflammatory condition, and every meal was followed by intense pain caused by the dragging on the adhesion with every contraction. It was this case, perhaps, more than any other that I have ever operated, that has convinced me of the increasing field of surgery in diseases of the stomach. No one could hope to relieve these adhesions, only to dull the sensibilities by morphine, and the danger of cultivating the habit is great, since every meal must cause pain, and the morphine could not be so frequently administered for a long period of time, without danger.

Now, about the medical treatment of these conditions after a positive diagnosis has been reached.

In looking over the newer works on materia and therapeutics, I note more conservatism expressed in the efficiency of drugs for the treatment of these diseases, and I consider it is a sign of the times. Anyone who has *seen* a gastric ulcer, with its area of dense induration and hyperemia and stasis, incident to the process, will be slow to believe that the wisest treatment would be the combination of bismuth, soda or antiseptics; the latter are most ridiculous of all, for how can you adminster an antiseptic of real value to a portion of the stomach, by giving it internally?

The logical treatment of gastric ulcer is protection against irritation, by drainage. Just as long as the food must pass that ulcerated area, just so long is it going to keep painful.

In motor disturbances of the stomach, much can be done by rest and tonic treatment, providing there is not a stenosis of the pyloris, or atrophy of the gastric muscle; and if cases applying to you with these conditions are not benefited by a thorough treatment of from four to six months, and I think it is wise to be frank with these people and tell them that they cannot hope to be benefited in less time—if, as I say, after a thorough treatment of from four to six months, which has included rest, tonic, and, perhaps, electricity, they do not get better, it is time to give surgery its opportunity.

Carcinoma is clearly a surgical condition from its very beginning, and when we get the cooperation of the conservative medical men to observe that the end of their conservatism in gastric carcinoma is always death in about two hundred days, then can we hope to have them listen to the pleadings for exploration—simple exploration. If one can look, see, handle, and know the pathology of these cases for a series, then can we, with reason, look for some definite light on the subject; until then we must be content to grope until some daring spirit essays to lead us out on the highway of treatment, illuminated by that great searchlight that should determine all efforts for relief or cure, the greatest phase of all medical science—Pathology.

All theory, speculation or experiment that has not pathology for its foundation must, and deserves to fail.

GASTRO-INTESTINAL CONDITIONS IN EPILEPSY.

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The purposes sought in calling attention to the anatomical and functional conditions which I found in all the cases of epilepsy—six in number—in which I looked for them, is to invite additional investigations, and by other observers, along the lines suggested in this paper. Conclusions which are based upon insufficient clinical observations are, as a rule, untrustworthy, but in the present instance attention is directed more to the stomach and intestinal conditions than to conclusions suggested.

As the cases under my observation were only six in number it would be rash to say that the stomach and intestinal conditions in these will likewise be found in other cases of epilepsy, or that such conditions occupy a definite etiological relation to the disease. And, further, the six cases under observation were all genuine—idiopathic—epilepsy, hence it would be premature to say that similar conditions will obtain in other types of the disease.

The term genuine epilepsy is used to designate cases which are not caused by indiscoverable lesions: as traumatism, syphilis, or new growths, involving the central nervous system.

Authorities on epilepsy usually recognize as factors of the genuine type of the disease, first, an instability, perhaps of a special order, of the

nervous system, that has been transmitted from an ancestor or ancestors by inheritance; second, a center or centers of irritation in the organism which are capable of influencing certain brain areas in a special way. A special predisposition to epilepsy may or may not be inherited, but in any case there has been transmitted a local or general instability of the nervous system. The exact site of the center of irritation in the organism, or the nature of this, whether mechanical or toxic, is apparently of no great concern, as it may be trivial in character, and situated in almost any part of the body. The sites of irritation have been referred to the genitalia, the stomach, intestines, nose, eye, ear and to the cutaneous and mucous surfaces. The irritation may be that caused by an elongated, adherent or tight prepuce; by an irritable clitoris, vagina, uterus, tube or ovary; by intestinal irritations, toxemias, parasites or constipation, by nasal polypi-inflammations or deformities; by error of refraction and muscular dystrophies of the eye.

Most writers on epilepsy mention in a general way the association of dyspeptic troubles, and some of them attach much importance to a real or supposed associated intestinal toxemia. Various dietaries more or less conflicting in character and composition have been advised, but so far as I can ascertain there have been found no definite conditions of the digestive organs, either functional or organic.

In all the cases of epilepsy which came under my observation there was found a myasthenic stomach; the organ was dilated, flabby and displaced. The food ingested was not delivered to the intestine in due time or in proper condition. There was a stagnation of gastric food in all the cases, and at times there was found a retention of the contents with fermentation, and quite often with a production of butyric acid. In these cases the contents withdrawn with the tube were excessive in quantity and foul smelling in character. In a majority of the cases there was found an excessive production of mucus, which appeared in the wash water in large, heavy transparent masses. Starch digestion was defective in all the cases, and was totally inhibited in the majority. The age of patient was not above twenty-five years, and the disease began in early life in all; three of the cases came under the care of myself or of my son, J. W. McLaughlin, Jr., in Austin. The remainder were treated by me in Galveston.

The association of excessive mucous production with an excessive hydrochloric acidity, which occurred in two of the cases, is contrary to the accepted rule that these secretions are usually found in inverse proportions, that is, there is a hypoacidity with a hypermucous secretion. The probability that the mucous secretion in these cases is not catarrhal, but that both it and the excessive secretion of hydrochloric acid are expressions of a secretory gastric neurosis has occurred to me.

It is often quite impossible to determine which of the two disorders, that of the stomach and intestines or that of the nervous system, is primary in cases of so-called gastric neurosis. Fortunately this knowledge is not absolutely essential to correct treatment, as the two disorders, gastric and nervous, form a vicious circle and react injuriously one upon the other, so that each one must, therefore, receive proper treatment. In a somewhat extensive experience in diseases of the stomach I have quite often met with these, especially secretory and motor disorders of the stomach, in association with neurasthenia, and have found the neurasthenic symptoms to disappear *pari passu* with those of the stomach, under proper treatment.

Treatment has been local, dietetic and general. Lavage, to rid the stomach of stagnated food, particularly when it is in a condition of fermentation or is foul-smelling and putrid, always affords temporary relief, and is important in affording permanent improvement of health. Sodium bicarbonate or chloride, in the proportion of a teaspoonful to each pint of water, may be used to wash out the stomach. The washing should be continued at each seance until the wash water comes away clear, and this should be repeated daily until gastric stagnation is overcome. I have followed this cleansing lavage, in cases of fermentation, with solutions of silver nitrate 1/4,000, or moderately strong solutions of argyrol, allowing the latter to remain in the stomach five or ten minutes before withdrawing it and washing out any remaining portion with clear water.

Electricity is valuable as a means of restoring the myasthenic gastric muscles. The Faradic current is recommended, one electrode intragastrically and the other applied over the dorsal spine. Massage, cold morning baths, followed by vigorous rubbings, and properly regulated exercise, accomplish the same purpose.

Dict.—The digestive capacity in individual cases should be determined by modern methods of investigation and the information thus obtained should guide the physician in the selection of diet for epileptics. Starchy foods, for example, are badly digested and favor gastric fermentation, at least in the cases which I examined. Sweets are contraindicated during gastric fermentation, but may be moderately used when the condition is not present. Proteids are unobjectionable if used moderately, the appearance of a pathological indicanuria should be a signal that proteids are often in excess. Vegetables are unobjectionable if properly cooked. But any form of food will be harmful if eaten in excess. The digestive capacity must not be exceeded.

Strychnine, quinine, nux vomica, the bitter tonics and iron, are advised to overcome gastric myasthenia. Believing that the protective function of the liver is impaired in neurasthenic conditions arising from intestinal intoxications, I have used with apparent benefit iris versicolor, euonymus, rhubarb and the preparations of mer-

cury, to restore this function. The bromides, belladonna and preparations of zinc, may be required in the neurasthenic habit.

Results.—The results have been uniformly good. The patients under treatment are brighter and stronger; are less nervous and more cheerful. There has been no attack in over two years in one case, and over one year in another. In the other cases the attacks have been milder and less frequent.

MEDICAL PROGRESS.

SURGERY.

Comparison of the Abdominal and Vaginal Routes for the Removal of Uterine Fibroids.—Comparing the relative merits of the two routes for the removal of uterine fibroids, Byford (*Chic. Med. Reg.*, March, 1905) gives very clearly the advantages and disadvantages of each method. He states that generally these factors should be considered, viz., the relative danger to the patient, the possibility of completing the operation in a satisfactory manner, and the surgical training of the operator. The advantages of the abdominal route are cited as follows: the possibility of working under the direction of the sight, the short time required for performing the operation, the ability to control all hemorrhage, the possibility of conservative surgery especially in subperitoneal tumors and the increased room possible which is of decided advantage to operators of moderate experience. The disadvantages of the abdominal route are enumerated as follows: The danger of surgical shock and intestinal traumatism, and of infection of the peritoneal cavity with following intestinal paralysis or obstruction and the objection of many patients to the abdominal incision. The advantages of the vaginal route are given as follows: The insignificance of shock, the minimum of disturbance of the abdominal viscera and the comparatively localized nature of any untoward conditions that might result from possible imperfection of sepsis and manual skill.

The author gives the disadvantages of the vaginal route as follows: The impossibility of having the guidance of sight, the difficulty of securing a thoroughly disinfected field and the liability of encountering unexpected or unappreciated difficulties as hemorrhage, injury to the ureters, etc.

The author considers that the vaginal route should be selected in cases in which the tumor is of such a size as not to hinder the pulling forward of the cervix to the vulva, so as to allow the operator to secure without delay the uterine arteries on either side of the cervix as well as the middle hemorrhoidal arteries behind. By this method one is able to remove subperitoneal nitramural and submucous fibroids if the mass can be brought down into view. The abdominal route should be selected in all cases when adhesions to the neighboring viscera are present, for all large fibroids for small ones that cannot be pulled down toward the vulva and in cases in which there is a small vaginal entrance and narrow vagina.

Prevention and Reduction of Deformity in Pott's Disease.—In calling attention to the very evident fact that the treatment of Pott's disease is not as successful as it should be, C. F. Eikenbary (*Chic. Med. Rec.*, March 3, 1905) states that no case taken in the early stage before there is any deformity, or before the deformity is marked, need recover with anything but a perfectly normal spine, so far as contour is concerned, and many cases, probably 50 per cent., who come in the later stages of the disease—that is, the sub-acute stage, when the deformity is quite marked, can have the deformity reduced one-half or nearly. In most cases the aim and expectation should be no deformity. No single line of treatment is applicable to all cases. So far as known, there is no medical treatment in any way, shape or form that has proven of the slightest benefit. The treatment is essentially mechanical, in addition to keeping up the general tone of the system all cases should wear a support, no matter whether the patient be confined to bed or not. Cases under three years, or in undersized children under four years, are best treated by being placed securely on a canvas-covered rectangular gas-pipe frame, and having a suitable number of buckles and straps to hold the child firmly. At the point opposite the kyphosis the frame should be bent, the convexity of the bend being toward the kyphosis. The child should be securely fastened until all acute symptoms subside, or, preferably, until the cure is complete. If deemed advisable, after the acute symptoms have subsided and the deformity is practically nil, plaster jackets may be applied, and if properly applied and kept on without the slightest intermission until the cure is complete, no deformity will ever result. In cases past four years of age there is no brace so universally successful as the plaster-of-Paris jacket properly applied. Every jacket should be so carefully and smoothly applied that no pressure, sore or other complication is going to arise that would necessitate its removal for a few days. The jacket should be applied as high as possible, while the patient is in the horizontal position, so as to secure as much hyperextension as possible. The important thing in whatever method is used is to produce the maximum amount of extension at the seat of disease, and having obtained such extension to apply the jacket high enough and low enough that you will lose nothing that has been gained, and to apply it so smoothly and so strong that a change under four months will be unnecessary.

Urethral Structure with False Prostatic Passage.—that the very great progress which has been made in the art of passing sounds is largely due to the teachings of Gouley cannot be doubted. He always insisted that it should be done with the utmost gentleness and his teachings are at last bearing fruit. Nevertheless, as recorded by Reginald Harrison (*Lancet*, February 18, 1905) it is still possible to find victims of the older methods of instrumentation who have actually had sounds passed directly through their prostates and thence into the posterior portion of the bladder. The sound usually leaves the urethra about an inch and a half before its entrance into the bladder, passes backward near to the rectum and thus breaking through prostatic capsule and retrovesical wall, establishes an absolutely new passage. These pasages not infrequently functionate moderately well, although it has been observed that many of the patients die from nephritis. The treatment should obviously be directed toward making good the old path and rendering the false passage unnecessary.

Acute Hemorrhagic Pancreatitis.—It is refreshing to find that an occasional case of acute pancreatic disease is being recognized in time to operate upon it and save the patient. T. C. Litler Hones (*Lancet*, February 18, 1905) reports the case of a married woman, twenty-six years of age, who was admitted to the hospital after seven days of obstipation. The abdomen was distended. She vomited. The epigastrium was tender and there was a localized swelling. The pulse was 128, temperature 96.2° F. The abdomen was opened and on dividing the peritoneum, bright blood gushed out. Three pints of free fluid were in the cavity. It suggested extra-

uterine rupture. At the entrance of the lesser sac a well-marked fat necrosis was noted. The pancreas was three times its normal size, discolored, edematous and hemorrhagic. There was no bleeding at the time of operation from the pancreas. This organ was packed off and in size longitudinally. No obstruction could be found, but the examining finger seemed to enter a dilated space. This was packed with gauze. The hemorrhage was at no time severe. The packing was removed in thirty-six hours, when the discharge became clear and continuous. It was pancreatic juice. It began to digest the margin of the wound, but gradually closed without serious trouble. For three weeks after operation, no fat containing food was given. Her urine was most carefully examined and nothing in the nature of the crystals described by Cammidge could be found. Although Mayo Robson and Barling emphasize the association of this condition with gall-stones, nothing was noted in this case. Opie's well-known experiments attest Halsted's opinion that obstruction at the duodenal orifice at the gut of Wirsung might be responsible for acute pancreatitis are well known. He concluded that the necrosis of the parenchymatous cells and hemorrhage represent the primary action of the bile and that inflammatory reaction rapidly follows. In the Heaton case, the ducts were patent and the microscopical sections showed acute inflammatory changes in the gland and the areas of blood extravasation. Beaver strongly advises an early operation with free drainage as the best means of checking progressive necrosis of the pancreatic cells and says that a tense edematous condition without marked involvement of the peripancreatic tissue calls for an incision in its long axis.

Traumatic Lumbago.—By traumatic lumbago is understood a condition in which pain and stiffness in the lumbar region caused by injury persist long after the immediate and acute effect has passed away. Frank Romer (*Lancet*, February 18, 1905) states that while no pathological proof was forthcoming of the assumption that these distressing conditions are brought about by adhesions in the muscular or tendinous structure of the lumbar region, the results of operation based upon this supposition are confirmatory in nature. The history of these cases generally records some strain of the back, necessitating perhaps a few days' rest. Most of such cases go on to recovery. But occasionally one is found in which the pain does not entirely disappear. Lumbar stiffness increases so that it eventually simulates chronic lumbago. The treatment of ordinary lumbago is in these cases obviously futile because of the absolute difference in the pathology. They resemble each other only in name. An anesthetic should be given both for the prevention of pain and for the insurance of complete relaxation. The patient is placed on his back. The leg on the sound side is flexed at the knee. The thigh is flexed on the body till the knee touches the chest wall. It is then brought back to the extended position. The leg on the affected side is now put through the same movements and comparison can then be made as to the difference in resistance. Both legs are now brought up together and both knees should be kept pressed against the chest for about a minute. The legs are now brought down again flat on the bed, and the patient raised to a sitting posture. The operator places one hand firmly over the affected lumbar region, while with the other he thrusts the patient back toward the bed. The hand on the small of the back causes the part to be extended. By this procedure the lumbar portion of the column is put through flexion and extension as the patient is pressed forward and backward. There is little pain after these manipulations. The after-treatment consists in rest, massage and graduated exercise. The author reports six cases which were cured by this treatment.

Surgery of the Gall-bladder and Bile-Duct.—In no department of surgery has the American mind left its impress in a more forceful manner than in the development of the surgery of these parts. Cholecystotomy was first performed by Bobbs, of Indianapolis, in 1867. In 1878, this operation was established as a definite surgical procedure by Marion Sims and thus the way was paved for the first cholecystectomy done by Langenback in 1880. D. A. K. Steele (*Annals of Surgery*, February 19, 1905) in an address upon this department of surgery before the Chicago Surgical Society, congratulated the members upon the fact that the society had probably more than any other kindred organization contributed to the sum of our knowledge upon the subject. In speaking of the symptoms, he said that it had been shown that the formation of a stone requires several months and is invariably preceded by gastro-intestinal catarrh, constipation, flatulence, epigastric discomfort, sallowness, slight icterus, scant high-colored urine, sour stomach, tenderness over the gall-bladder, so-called bilious colic and sick headache. Gradually from this condition there may be evoluted a typical attack of gall-stone colic. Many of these cases are treated for years by medication, by diet, massage, baths, exercise, olive oil, Carlsbad and other resorts. The delay occasioned by this error often causes serious complications, peritonitis, dilatation and infection of the gall-bladder, circumscribed abscess formation, empyema and universal adhesions. These lead to the obliteration of the normal landmark and this immensely increases the difficulties of operation and add to its mortality. The condition is in nowise seriously different from that found in recurrent appendicitis. For this reason, the old dictum of three months' medical and dietetic treatment, is seen in the new light to be altogether too long, for while uncomplicated cases of cholecystitis and cholelithiasis, give practically no mortality, the same operation in cases generally exhausted and with local conditions rendered abnormal as a result of chronic inflammation and infection, the mortality is discouragingly high. The author gives the following indications taken from Waring for operation: (1) The presence of a tumor in the abdomen appears to be an abnormally distended and large gall-bladder. (2) The existence of jaundice, which is persistent, together with other signs and symptoms which point to complete destruction of the common bile duct or the common hepatic duct. (3) The recurrence of successive paroxysmal attacks of biliary colic with short intervals between the attacks and a general lowering of the health. (4) Symptoms of localized inflammation in the region of the gall-bladder, associated with biliary colic. (5) The occurrence peritonitis due to perforation of the gall-bladder.

MEDICINE.

A Case of Anchylostomiasis.—The case reported by Karshin (*Roussky Vratch*, February 25, 1905) is interesting inasmuch as, besides the principal parasite, the patient seemed to harbor also *Tænia saginata* and *Trichocephalus dispar*. The boy, eleven years of age, began some three years ago to show signs of impaired health, grew pale and very weak, complaining of gastric pain, at times vomiting, dyspnea, palpitation of the heart, dizziness, tinnitus aurium, headache, and so on. He was a playful child, who formerly spent much of his time playing in sand. He presented all the symptoms of progressive pernicious anemia, except that the great percentage of eosinophiles in the blood, namely,

41½ per cent. suggested the possible presence of intestinal parasites; appropriate medication caused the expulsion of tænia with the consequent dropping in the percentage of eosinophiles to 17.2 per cent. But as the condition of the patient did not seem to improve much (he had marked edema of the legs, heart murmurs, dilated pupils, a tender liver and subfebrile temperature), and an examination of the feces elicited the presence of an enormous number of the eggs of *Anchylostoma duodenale;* treatment was instituted (chiefly the ethereal extract of male fern and cautious doses of thymol), and the author succeeded in the course of some days in expelling 200 live worms. There ensued at once general improvement in all the symptoms, the patient recovered rapidly and remained so. It would seem that between the two theories—infection by the worm per os, or per cutem, the latter finds more favor with most of the investigators. The symptoms produced in the host are evidently due not only to mechanical causes alone, but also to the presence of some as yet unknown poison which seems to be the biological product of the parasite in the human body. Moreover, the presence of the parasite in the intestine tends to increase the number of the intestinal bacteria, thus enhancing the various putrefactive processes therein, and also deprives the host of so much nutrition, besides acting reflexly by irritating the peripheral nerve-endings. The parasite is taken up chiefly and directly from the soil, and since attention had been called to the serious consequences caused by it the number of those affected with it increased from 113 in 1897 to almost 2,000 in 1903. With their accustomed care the Germans have since the last few years required that every miner, clay worker, etc., applying for work present a certificate of never having suffered from anchylostomiasis. The author calls special attention to the fact that the child having become infected while living at Port Arthur, the army now in Manchuria, living as they do under extremely unhygienic conditions, and being constantly occupied in digging up the ground for various military purposes, are sure to become the disseminators of the disease on their return home to Russia, and urges special precautions to limit the spread of the disease.

Duodenal Ulcer. The ulceration of the funnel-shaped area comprising the pyloric end of the stomach, the pylorus and the first portion of the duodenum has in the past fifteen years attracted very great attention. B. G. A. Moynihan (*Lancet*, February 11, 1905) states that since 1900, the date of his first operation on duodenal ulcer, to September, 1904, he had operated on 51 cases. There were seven cases of perforating duodenal ulcer with five recoveries, 22 operations for duodenal ulcer associated with gastric ulcer with one death and 23 operations for duodenal ulcer alone with one death. It is well known that almost all writers remark upon the rarity of ulcer in duodenum, that this is a fallacy there can be no reasonable doubt. The author has made his observations and has established the frequency of the condition from the study of the living, whereas text-book authorities obtain their data from autopsy reports. The symptoms of duodenal ulcer in many cases are characteristic and in the writer's opinion it is a mistake to believe the oft-repeated statement that a differential diagnosis between an ulcer of the stomach and one of the duodenum is difficult, he having in most cases been able to establish it either upon the physical signs or upon the history. Ulceration is ten times more common in the first portion of the duodenum than in the second. Duodenal ulcer may occur at any age. Oppenheimer has collected the records of 15 cases of melena neonatorum resulting from ulcerated duodenum. Duodenal ulcer is said to be more common in the male than in the female. Weir has stated it as being six to one, Mayo 2.5 to one. In the author's reports there were 32 males and 19 females. The symptoms naturally are kin to those of gastric ulcer, namely hematemesis and melena neonatorum. The complications are (1) hemorrhage; (2) perforation, acute, subacute and chronic; (3) cicatricial contraction and induration, causing narrowing at the ampulla of vater and obstruction to the outflow of bile and pancreatic juice; (5) periduodenitis; (6) cancer; (7) compression of the portal vein from cicatrization of a deeply placed ulcer (French); (8) diseases of the gall-bladder or bile ducts; and (9) diseases of the pancreas. The association of diseased gall-bladder and bile ducts with pancreatic disease is interesting. In ten of the author's series there was obvious evidence of disease in the gall-bladder with or without stones. Duodenal ulcer unquestionably may predispose to the formation of stones by giving rise to peritonitis. As a result of this there is stasis of bile and perhaps infection. The two conditions best known to be necessary for the formation of concretions. The relation of pancreatic disease to duodenal ulcer has not yet received attention. It was present in three of the 51 cases. A localized chronic pancreatitis may result from a gradual deepening of the duodenal ulcer. It may further be caused or at least aggravated by the same conditions which give rise to the ulcer, viz., alcohol or syphilis.

On the Influence of Copious Water Drinking.—Notwithstanding the fact that a large number of investigations have been made on the influence of copious water drinking, yet there does not seem to be recorded any set of data from a carefully conducted series of experiments of this sort upon human subjects, having for its object the study of the course of the nitrogen, sulphate and phosphate elimination. An extensive series of experiments have now been made by P. B. Hawk (*Univ. Pa. Med. Bull.*, March, 1905) in which the subjects were placed on a constant diet, and by means of preliminary periods of sufficient length, brought to a condition of approximate nitrogen, sulphur and phosphorus equilibrium. At this point, the regular constant diet was supplemented during a period of two days by a large volume of water taken daily at stated intervals. After this the normal conditions were again maintained. Food, urine and feces were all subjected to most careful analysis. The writer concludes that water drinking causes an increased excretion of nitrogen and phosphorus by the urine. The increase in the amount of nitrogen eliminated is due primarily, to the washing out of the tissues of the urea previously formed, but which has not been removed in the normal processes, and secondarily, to a stimulation of proteid catabolism. The increase in the excretion of phosphorus is due to an increased cellular activity and the accompanying catabolism of nucleins, lecithins and other phosphorus-containing bodies. There was nothing which would lead to the inference that there was anything detrimental in the consumption of large quantities of water. The ingestion of 9,000 c.c. of water in forty-eight hours caused an increase of 2.17 grams of nitrogen during that period in the urine. The excretion of the sulphates was along similar lines.

Early Diagnosis of Cancer of the Stomach.—The special points of value which are of aid in the early recognition of malignant disease of the stomach are reviewed by M. le Dr. J. Noever (*Jour. Med. de Brux.*, March 2, 1905). He calls attention to the statements of Finckelnburg who in 1894 noted the increasing frequency of this affection, and to the statistics of W.

Roger Williams showing that this increase is real, and that men are more frequently affected and present visceral lesions. The early diagnosis depends upon the following points: (1) Examination of stools for blood by the Boas method. In 67 cases he was able to detect blood in 65 cases. *Method.* (*a*) Triturate part of stools with distilled water; (*b*) add to one part of mixture one-third volume of glacial acetic acid; (*c*) extract with ether; (*d*) stir etherial extract with a mixture of 30 drops of oil of turpentine and 10 drops of tincture of guaiac. The blue color resulting is made more distinct by adding distilled water and chloroform. (2) Examination of gastric fluid. Hydrochloric acid is present in 11 to 13 per cent. of cases and is more frequent in cases of carcinoma of the pylorus than of the lesser curvature. Hyperacidity also is present in cases of carcinoma with an old ulcer, or following nervous hyperacidity. Lactic acid is not pathognomic of carcinoma, but it is not produced in so great a quantity in other affections, nor is stasis necesary for its presence. In cases of stasis fasting with absence of lactic acid and presence of hydrochloric, the difference between ulcer and carcinoma is distinguished as follows: The gastric juice should be examined three times the same day. The first fasting; the second after a test meal of egg albumin; the third after a test meal of beefsteak. In cases of ulcer he finds hydrochloric acid in all three trials. The absence or presence of a small quantity of hydrochloric acid in one or several of the three examinations indicates mucous catarrh of the stomach. Mucous catarrh with other symptoms is in favor of carcinoma. The transudation of albumin into the stomach is determined by allowing no albuminous food after midday. In the evening the stomach is washed with water. Next morning, while fasting, the stomach is washed with 400 c.c. of normal salt solution. If the liquid contains more than 20 mg. of nitrogen, or more than $^1/_{16}$ to $^1/_2$ in 1,000 albumin, the presumption is in favor of carcinoma. (4) The bacillus of Boas-Oppler is in itself not diagnostic but the presence of this bacillus on small brownish coagula mixed with chyme after certain test meals in the presence of hydrochloric acid points toward probable carcinoma. Albumoses are found in the urine by the biuret reaction in two-thirds of the cases of carcinoma but are also demonstraable in the urine of cases of appendicitis, abscess of groin, empyema, meningitis and other purulent processes, but is distinguished from these latter by the presence of other symptoms. It has been shown that the lack of digestion leucocytosis which was supposed to occur only in carcinoma may be present in simple gastric catarrh. The author considers that sometimes an early diagnosis of cancer can be made, but for the most part we remain ignorant of its malignancy and its extension. He does not agree with some authorities that an early diagnosis is impossible without exploration, yet considers that an early exploratory laparotomy should be done when a sufficient number of symptoms point to beginning carcinoma.

Extensive Carcinoma of Tongue and Neck, Presenting Points Special Interest.—Dr. William Seaman Bainbridge (Am. Med., March 25, 1905) reports the case of a man of forty-nine, an inveterate smoker for twenty years, who was first aware of his trouble in May, 1902, when a small pimple appeared half-way back on the dorsum of the left half of the tongue. This would disappear under local applications, with discontinuance of smoking, only to return when smoking was resumed. The pimple finally persisted, growing rapidly, and in December, 1903, the author took charge of the case. The patient was somewhat cachectic and had lost considerable flesh and strength. The anterior third of the tongue, except the tip, was involved by a hard, crater-like ulcer. No glands were palpable at this time. Microscopic examination confirmed the diagnosis of vascular epithelioma. On March 11, 1904, the patient was operated upon. The first incision extended from the tip of the left mastoid process to that of the right, and below as far as the thyroid cartilage. The second incision extended along the anterior border of the left sternocleidomastoid muscle to within an inch of the clavicle. The two lingual arteries were tied in situ, the submaxillary and the sublingual glands on either side removed, and the salivary ducts extirpated clear into the mouth. Many cancerous glands were removed from the region of the tonsil on either side. The lymphatic glands with their vessels were removed en masse as far as possible, and with them the connective tissue and fascia of all the contiguous muscles. The wound was completely closed except for a small drain at the lower part. The mouth was next forced open and the growth on the tongue cut down with Paquelin cautery. Whitehead's shellac being applied as a coating to the cauterized surface. The wound healed by primary union. On March 28 the left corner of the mouth was incised to the edge of the masseter muscle, the mouth forced open, the tongue drawn out and elliptic incision made on the floor of the mouth, encircling the tongue, this organ being completely removed. A bridge of tissue was made across the fauces in front of the epiglottis by a small flap of mucous membrane dissected away from the right glosso-epiglottic fold. The wound in the floor of the mouth was partially closed by chromicized catgut, the wound in the cheek closed in the usual way and shellac applied over each. Within a few hours the patient could swallow fluids, and on April 21 was discharged cured. Since that time he has steadily gained in flesh, is apparently perfectly well, is able to masticate even solid food, to taste, to talk intelligibly, and even to sing.

Nature of Scleroderma.—L. Huismans (*Münch. Med. Woch.*, March 7, 1905) draws attention to the fact that in most cases of scleroderma there are symptoms pointing to involvement of some or all of the ductless of glands. Thus in his own case, there was amenorrhea (ovaries), pigmentation and dryness of the skin with vomiting and general lassitude (adrenals), atrophy of the thyroid, falling out of the hair, absence of perspiration (thyroid) and dystrophy with weakness of the muscles (hypophysis). The disease is certainly not a pure neurosis but is probably the result of an infection, secondary to a functional disturbance of the sympathetic nerve following trauma, pregnancy, etc. If the functional disturbance is slight, complete recovery may follow, if severe, a degenerative inflammation will develop in the ductless glands and skin. The localization of the disease is solely due to the peculiar distribution of the sympathetic nerve.

Chemistry of Chronic Nephritis.—Chemical examination of the blood, kidneys and various other organs, particularly with reference to the chlorides, led T. Rumpf (*Münch. med. Woch.*, February 28, 1905) to conclude as follows: In health, the amount of chloride of sodium in the kidneys, generally exceeds that in the blood and the other organs. In a large number of cases of nephritis, the difference is still more marked, but exceptions are common, especially in the early stages. The amount of salt in the blood and tissues in nephritis is usually above normal, yet there are many cases where the opposite holds, despite the presence of edema, albuminuric retinitis and uremia. The percentage of chlorides found in the pericardial, pleural

and peritoneal fluids of nephritis is not constant. Since higher figures were often obtained with the transudates of other conditions, it is improper to conclude that transudation in nephritis is a result of retention of salt. There can be no question, however, that there is a decided retention in the kidney of chlorides, sodium, potassium, calcium and magnesium. In the early stages of nephritis the blood and tissues contain less water and more solid residue, but in the later stages this is no longer constant.

Roentgen Rays in Leucemia.—A typical case of myelogenous leucemia was subjected by K. SCHLEIP and W. HILDEBRANDT (*Münch. med. Woch.*, February 28, 1905) to a thorough course of treatment with the Roentgen rays. All in all, the spleen was exposed 648 minutes, and the bone-marrow of the sterum and femur, 130 minutes, over a period of nearly three months. The following changes were observed during this period. The fever, which before treatment was very slight and absent altogether on some days, became more pronounced and of decidedly intermittent type; despite this the patient increased in weight three kilograms. The number of leucocytes increased from 280,000 to 350,000 until the duration of the exposure had reached 500 minutes; after this there was a rather sudden drop to 53,000. Each single exposure diminished the number, sometimes as much as 100,000, but usually there was a secondary rise soon after. There can be no doubt that the effect of the rays is a specific one upon the white cells, since the reds never fluctuated to such an extent. It seems that not only the neutrophiles, but all the different types of leucocytes found in leucemic blood, are affected. Degeneration, cell-division, etc., were never seen so that it is not probable that the cells are actually destroyed, but that their distribution within the body is altered. A final disintegration does, however, occur after the cells have once accumulated within the internal organs. The objective symptoms did not improve, and the spleen retained its original size. It is impossible to say at this date, if the improvement brought about by the Roentgen rays is parmanent or only transient, but it is unquestionable that prolonged exposures (600 minutes and over) are followed by pronounced improvement.

The Tuberculous Predisposition.—Most of the investigators of and writers on tuberculosis incline to the view that the predisposition to tuberculosis is of greater importance in the etiology of the disease than the infection with the bacillus; for if it were otherwise we should have a much greater number of those sick with the disease than there are at present; according to Naegeli's statistics, almost every human being carries within him the bacillus by the time he gets to be eighteen years old. On the other hand, it is assumed by KOSSEL, WEBER and UNTERBERGER (*Prakt. Vrach.*, January 8, 1905) that there exists a certain gradation in the degrees of virulence of the infectious principle. The latent and the lethal cases of tuberculous infection differ from each other not by the nature of the infection, but simply by its degree. The individual predispositon, as well as the excitng causes are of an inconstant and changeable nature. In accordance with the relation between these two, we get the tuberculous infection in a light, or serious form, or the attacked person may show no clinical signs of the infection at all. The bacilli expectorated with the sputum contain in the majority of cases infectious spores, which may possibly be of saprophytic nature. It is the hereditary predisposition that plays the most important rôle in the etiology of the disease As based on these postulates phthisiophobia is not justifiable and should be vigorously combated, and it becomes evident that all our efforts should be directed toward the creation of such sanitary and economic conditions by the aid of legislative measures as to minimize any possible tuberculous predisposition in the family. The author thinks that the time has at last arrived when the treatment of tuberculosis through the destruction of the bacilli is no longer feasible, and that hygienic and dietetic measures are of much greater importance.

Diphtheria Infection in Minnesota.—F. F. WESBROOK (*Journal A. M. A.*, March 25), describes the methods of handling diphtheria epidemics in that state. The principal points insisted on are the needs of thor ough laboratory examinations, repeated frequently if necessary where suspicious bacilli are found, isolation of cases and of hitherto unaffected individuals with simple sore throat and prompt executive action based on laboratory findings and initiated by one of the laboratory experts. After the system is well started, competent local medical authorities can be relied on, if sufficiently impressed with its importance. The experience in Minnesota has shown that this is perfectly practicable under most varying conditions, and this is proved by the history of the management of epidemics given in the paper. The experience of Minnesota seems to point to the conclusion that diphtheria infection is usually transmitted by almost direct exchange of the flora of the nose and throat. In institutional and school life the more independent the individual and the easier the individual isolation, the less is the diphtheria infection and the easier is its eradication.

THERAPEUTICS.

The Use of Atropine in Puerperal Fever.—In spite of its well-known property of putting to rest plain muscle, atropine has hitherto played no important rôle in gynecology, according to Dr. DRENKHAHN (*Therap. Monatsheft.*, February, 1905). The author treated successfully two cases of puerperal septicemia with atropine. The first case received in the course of nine days .06 grams of atropine, about .006 grams daily, that is about double the maximal daily dose. The second case received likewise large doses. The author defends his practice upon the following observations and conclusions: Puerperal fever is, above all, a wound-infection of the uterus with a pure tissue-mycosis. With complete rest of the uterus and neighboring organs it remains a tissue-mycosis which heals spontaneously without douching or other manipulations. Atropine is the ideal drug for producing rest of the uterus. Contractions of the uterus lead to toxemia and bacteremia. The bacteria circulating in the blood and lymph streams may lead to tissue mycosis in other organs. If the latter have already been infected, atropine still favorably influences the course of the uterine disease, and may even at times arrest the progress of the toxemia by inhibiting the absorption of the toxic material from the extensive surface of the uterus. It has no effect upon the secondary tissue mycoses. If menstrual colic be, according to Theilhaber, the result of a spasm of the circular muscle of the inner os, then atropine would be indicated for the relief of pain. One should not be afraid to give relatively large doses of atropine. There is no danger of producing uterine hemorrhage during the first few days following delivery. Frequently one mg. has but slight effect. Prolonged atropinization of the uterus has no effect on involvement. The only disadvantages that sometimes accompany the use of atropine in puerperal patients are disturbance of accommodation and vesical paralysis.

Clinical Notes on Digalen.—Some time ago Cloetta introduced a new soluble modification of digitoxin, to which he applied the name digalen. In a recent article K. Kottmann (*Zeitsch. f. klin. Med.*, Vol. 56, Nos. 1 and 2) gives an account of his clinical experience with this drug. Injected subcutaneously in doses of 0.25 to 0.3 milligrams two or three times daily a prompt digitalis action is generally obtained within twenty-four hours. Owing to its ready solubility there is very little danger of a cumulative action and the subcutaneous application avoids gastro-intestinal disturbances. The only disadvantage is a local reaction which sets in within half an hour and may persist over night. It generally shows itself in moderate pain and some swelling, but fever was seen in only two cases of Basedow's disease. If an immediate result is desired, the drug may be injected directly into the vein, preferably at the bend of the elbow. For this purpose the arm is constricted with a rubber bandage and the needle then introduced into the vein which is steadied with the fingers. As soon as a column of blood rises in the syringe, the bandage is loosened and the solution injected very slowly. After doses of 1.5 to 3 milligrams a rise of blood-pressure was observed in two to five minutes; it reached its maximum in one and one-half hours and persisted for twenty-four hours. The frequency of the pulse was influenced but little, but diuresis was marked. Intravenous injections of digalen are indicated especially in acute cardiac weakness, cardiac asthma, and in the imminent collapse of typhoid, pneumonia and other acute diseases. For chronic endocarditis, on the other hand, the subcutaneous application is preferable. Great care should be exercised to avoid intoxication, since this cannot be combated with any known remedy.

Food Preservatives.—V. C. Vaughn (*Journal A. M. A.*, March 11) states that a true food preservative must keep the substance to which it is added in a wholesome condition so that it can be consumed without impairment of health. It must be a real preservative, keeping the food in a wholesome condition and not merely preserving the appearance of freshness while permitting bacterial changes to continue. It must not materially impair any of the digestive processes even in the largest quantities used, and should not be a cell poison, or if such to any extent, it must be added to foods only by persons qualified by special training and officially authorized. Foods containing these substances must be plainly labeled and the kind and amount of the preservative used must be made known, not only to the buyer, but to each consumer. A cell poison is defined as an agent that destroys or impairs cell functions by its chemical action.

PATHOLOGY AND BACTERIOLOGY.

Physiological Mechanism of Natural Immunity.—It has been found by R. Turró and A. Pi y Suner (*Jour. de Physiol.*, January 15, 1905) that the injection of large doses of saline solution into rabbits increases their resistance to the infections of malignant edema and streptococcus. This effect is attributed to the fact that the saline solution dissolves a large amount of alexines out of the protoplasm of the cells, and thus adds it to the bodily fluids, thus increasing their bactericidal power. This conclusion is supported by the observation that the splenic or renal pulp, if macerated with salt water acquires a bacteriolytic energy which is greater than if the zymotic principles had not been dissolved out. The guinea-pig does not behave toward the virus of charbon like a culture tube; it opposes certain resistances to the proliferation of the microbe, which are, however, feeble. This natural resistance increases in the following order: sheep, cow, man and dog. The degree of immunity depends principally upon the bacteriolytic power of the cells and humors, and this power is directly in proportion to the degree of solubility of the active substances. If a tissue contains enzymes that are but slightly soluble, its defensive power is diminished. If it is easily coagulated the defensive power is destroyed and the organism is helpless. This explains how the procedure of artificially augmenting the solubility of the active bacteriolytic substances in the rabbit by means of saline solution, gives this animal for the time being a defence against charbon which is equal to that of the dog. To sum up, the organism is infected by virtue of the coagulability of its plasmas, and resists infection by virtue of their solubility.

The Agglutination of the Streptococcus by the Blood of Scarlatinal Patients.—That this actually occurs is positively shown by the experiments of MM. Detat et Bourcart (*Rev. Mens. des Mal de L'Enfance*, March, 1905). The phenomenon, however, is variable and inconstant. Normal serum as well as the serum obtained from infections other than these of scarlatina, can also agglutinate the streptococci isolated from the blood of cases of scarlatina, and to an equal degree. Analogous results were obtained by using streptococci obtained from patients suffering from other diseases. These researches are admitted by the authors as having no practical application in diagnosis.

The Presence of Soaps in the Organism in Certain Pathological Conditions.—That soaps are formed in the cells as precursors of calcareous degeneration, has been revealed by the researches of O. Klotz (*Am. Jour. Physiol.*, February, 1905). The earliest change in cells, which later undergo calcareous degeneration, is one of cloudy swelling or coagulation necrosis. Following this, fatty changes are noticeable in the cells, and, now, by means of proper reagents, soaps with potassium, sodium, and presumably ammonium bases, can be detected. Such soaps and albumins form a combination which is insoluble in water or salt solution. Soaps and fatty acids have an affinity for the calcium salts in solution in the body-fluids, and form with them an insoluble compound. Later, judging from the fact that phosphate and carbonate of lime are formed, and the deposits give no reaction for fats, the fatty acid moiety of the calcium soap is replaced by the more powerful carbonic and phosphoric acids.

PEDIATRICS.

Conditions Mistaken for Meningitis.—A report of a number of cases of simulated meningitis is made by E. P. Baumann (*Brit. Jour. of Child. Dis.*, February, 1905). They include a case of typhoid fever believed to be one of typical tuberculous meningitis and demonstrated as such to students; a case of lobar pneumonia in which the tache cérébrale was marked; a case of bronchopneumonia with extreme head retraction, michal rigidity, strabismus and Kernig's sign; a case of influenza, with head retraction, rigidity of both legs, Kernig's sign, tache cérébrale, increased tendon reflexes and strabismus; and cases of mastoid disease, middle-ear disease, sarcoma of the brain, renal disease, and gastro-intestinal disturbance. Other conditions that sometimes closely ape meningitis are the hydrencephaloid condition of infants suffering from acute gastro-enteritis, roundworms, trichinosis, abscess of the brain, hysteria, retropharyngeal abscess, tonsillitis, teething, the exanthemata, particularly scarlet fever; and last of all, cases catalogued in hospital records as

cases of "pseudomeningitis," in which all the symptoms of cerebral irritation are present, and every possible cause having been excluded, a diagnosis of meningitis is arrived at,—then, for some unknown reason, the temperature falls, and the child recovers completely.

The Dangers of the Use of General Anesthetics in Operations for Adenoids.—A discussion of the regretable consequences that may follow the employment of anesthetics in general and bromide of ethyl in particular in these operations, is made by S. DE MENDOZA (*Arch. de Méd. et de Chir. Spéc.*, January, 1905). No one should be exposed to the danger of death for an operation which should not last more than fifteen seconds, and in which the pain is a negligible quantity. The dangers from ethyl bromide are as real as those from chloroform. Those who look upon anesthesia for simple ablation of adenoid vegetations as a necessary adjunct to the mise en scène, should remember that, as Dastre has said, "Anesthesia is nothing else than a limited poisoning, the first step in a general intoxication; the mortal dose is far from the useful one, but frequently, it may be near; occasionally the road is on the edge of a precipice." If one is determined to use an anesthetic, it is a crime to make the family of the patient an innocent accomplice by assuring them that the anesthetic is not accompanied by any danger whatsoever.

Weaning.—An extract on this subject from Prof. A. PINARD'S book in the care of the young child, is published in *Rev. Prat. d'Obstet., et de Pediat.*, December, 1904). The child should be weaned when at least a year old. If the child is thriving and has already shown evidence of digesting cow's milk, it may be weaned at the tenth month, provided that this does not coincide with the warm months. Weaning should not occur either immediately before or after the warm months; hence it should not occur in May, June, July, August or September. Prolonged lactation is bad, resulting in delayed dentition and maldevelopment of the bones. Gradual weaning should be practised. During the first year the infant should receive nothing but milk. The addition of soups, legumes, wine, etc., to its diet is to expose it to the danger of rickets. At the period of weaning the mother should expose herself to fatigue as little as possible, the breasts should be included in a binder with cotton and may be gently rubbed, morning and evening, with warm sweet almond oil. The use of purgatives is not indispensable. The mother should diminish the quantity of fluids in her diet. During the second year, until the appearance of the twentieth tooth, the best nourishment for the child is found in milk, bread and eggs. Under bread is included bread in all its forms, as well as the cereals. Exceptionally, toward the end of the second year there may be given in small quantity some purée of potato. The proprietary cereal preparations are to be avoided. The food should be liquid or semi-liquid at first. The fundamental food is milk. The quantity of the latter to be taken by a child one year old is about a quart. During the second year this quantity will hardly be exceeded. Overfeeding should be avoided. Insufficient nourishment is more frequently the result of over- rather than under-alimentation. In the beginning, a simple gruel should be given, at first once, and later, twice daily. At first only sugar and salt should be added, but later a little butter may be added in addition. In due time egg may be given. One should begin by giving the yolk only, mixed with the milk or gruel. Later the entire egg should be used. A frequent result of the addition of eggs to the diet is constipation. Until the twentieth tooth has been cut, it is necessary to closely watch the child's diet during the hot months.

Infectivity and Management of Scarlet Fever.—A good deal has recently been written on the pros and cons of desquamation as a factor in determining positively the infectiousness of a case of scarlet fever. Mallory, of Boston, has presented indisputable evidence of the existence of certain forms of protozoan-like bodies capable of segmentation and in many ways resembling the malarial organisms which have been found in the skin and in the occasional vesicles which form under certain conditions in the surface of skins of persons suffering from scarlet fever. W. T. GORDON PUGH (*Lancet*, February 4, 1905) concludes as a result of his investigations that the evidence in favor of the belief that infectivity does not lie in the desquamating cuticle, but in the throat and nasal cavities. In scarlet fever, therefore, as in diphtheria, it must be impossible, he asserts, to ascertain definitely by clinical means when the patient has been freed from infection. It must not be assumed, however, that prolonged infectivity is the rule, it being probable that the majority of patients are free from infection at the end of the minimum periods of isolation. It would seem impossible to discover by clinical means the minority who retain infection longer and difficult even to differentiate those by whom transmission of infection is likely. The impression derived from experience has been that such transmission is likely to occur from those who suffer from rhinitis at the time of their discharge or who have suffered from this complication during the period of their isolation. A nasal discharge then, while not necessarily to be looked upon as giving evidence that the patient continues to be infectious is to be viewed with suspicion, for if the source of contagion still happens to continue in the secretion, it will certainly act as a vehicle for distribution should the case be allowed to pass out.

PRESCRIPTION HINTS.

Urticaria in Children.—M. DAUCHEZ recommends in the (*Jour. Med. de Brux*, March 9, 1905) in the treatment of urticaria in children the following treatment: (1) Give to the child, during two or three successive days, as a laxative, one or two teaspoonfuls of the following mixture:

℞ Magnesium sulphate.....
Sulphur sublimate.....
Bitartrate of potassium.
White honey..... } .....aa gr. v

(2) Restrict the child exclusively to a milk diet, and later omit the use of fish and fruits, especially of the fresh variety. (3) Immerse in a gelatine bath (100 to 200 gr.) for twenty, thirty or forty minutes, avoid wiping and wait two hours at least before applying, preferably in the evening, by a pencil brush the following liniment:

℞ Chloroform pure.....gr. iv
Tincture of aconiti.....gr. vi
Oil of sweet almonds.....gr. xc
M. and stir well. For external use.

(4) In case of irritation at night, apply warm solutions of opium or the decoction of tobacco, followed abundantly by the use of the following powder:

℞ Talc (finely pulverized)..
Oxide of zinc.....
Starch (chemically pure) } .....aa

The above treatment is supplemented advantageously by the internal use of some slightly alkaline water (Vals or Vichy St. Yorre) pure or mixed with milk.

To prevent the offensive return of the urticaria, continue the use of laxatives, each week; omit the use of preserves, pork, shellfish, salt fish, especially in summer, strawberries, etc. Avoid carefully overfeeding.

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MEDICAL ADVERTISING AND THE DAILY PRESS.

The counsel for the Medical Society of the County of New York, Champe S. Andrews, Esq., has done a very laudable thing in giving due publicity to his article read before that society on "A Century's Criminal Alliance between Quacks and Some Newspapers." Any one who knows anything about the nefarious trade of the quack and how he succeeds in working on the fears of his victims, often, indeed, groundlessly, in order to secure what is so frequently the hard-earned savings of a lifetime, will appreciate the sociological importance of Mr. Andrews' work.

There seems to be no doubt that he has struck the keynote of the whole case in laying the blame directly for the success of modern quackery upon the rapacity of the advertising department of many newspapers. Ninety-nine per cent. of the victims of quacks are attracted to these men as the result of reading newspaper advertisements. Not only are the victims attracted from the cities, but also from distant parts of the country.

It seems idle for the newspapers to claim that they are guiltless in the matter. Some of the contracts made with quacks show that they charge practically double the ordinary rates of advertising to these men confident that owing to the objectionable nature of the advertising material and the fact that they are sharing in the profits of the nefarious work, they will obtain their price. In some of the cases of quacks recently condemned for fraud and extortion in New York City, the advertising contracts with New York papers ran up to many thousands of dollars a year. If these unfortunate evidences of lack of the true ethical spirit were on the decrease, the present condition would not be so pitiable. As a matter of fact, however, there is more medical advertising and it is of more reprehensible character now than ever before in the history of the modern newspaper. While many respectable papers refuse to accept medical advertisements of any kind, and this is indeed the only proper position to occupy in the matter, others in their most widely circulated editions, publish more medical than of almost any other class of advertising.

Perhaps the saddest feature of all this unfortunate business, is the fact that the newspapers that are most ardent in their protestations of interest in the poor and of persistent effort to save the people from impositions of various kinds, are the most flagrant violators of the simple code of ethics which, if effectively maintained, would at once put an end to a whole mass of impositions and fraud and deceit mainly affecting the poorer classes. If after the present exposure, for it can be considered nothing less than this, by any one who reads without prejudice Mr. Andrews' arraignment of the newspapers, then legal remedies must be secured or such as are at present in existence must be enforced. There is no doubt at all that with regard to many of these advertisements the present laws forbidding the passage through the mail of printed matter evidently intended to be an auxiliary of fraud, might very well be enforced. If the advertisements of "get rich quick" concerns are not to be admitted to the mails, then surely the advertisements of the "get well quick" concerns might very well be excluded for similar reasons.

If this cannot be done, then Mr. Andrews' suggestion that State legislation shall be obtained, seems to be next in order. At least one State has furnished a valuable precedent in this matter. As the result of properly directed efforts on the part of the State Medical Society of Michigan, a law has recently been passed to prohibit the publication of the virtues of patent and other simple and compound medicines in the State of

Michigan in language of immoral tendency or of ambiguous character. This law expressly forbids, for instance, the advertising of drugs of any kind for private diseases, for the cure of chronic female complaints or compounds that are designed to prevent conception, or produce miscarriage, or abortion. Besides this a special act forbids the advertisement of anything having reference to the production of criminal abortion. These laws indeed might very well be imitated by other States to the great benefit to the morals of the community and to the good riddance of a class of persons eminently undesirable in their influence in their present occupation.

Unfortunately there is an impression abroad that the members of the medical profession are engaged in this work of preventing the advertisement of quack remedies, mainly because it is a business proposition to them, as if indeed these advertisements did not rather, by exciting the morbid feelings, bring an added number of clients even to regular practitioners. On account of this unfortunate impression, however, there must, in most States, be a preliminary period of education during which physicians must use every effort to make it clear that the proper regulation of medical advertising will result in benefit to the community at large rather than to the physician and will at the same time eradicate from our newspapers one of their most objectionable features.

PROPHYLAXIS AND TREATMENT OF INTESTINAL AMEBIASIS (AMEBIC DYSENTERY) IN THE TROPICS.

Intestinal amebiasis (amebic dysentery) is the most important disease of the Philippine Islands. It causes more disability and does more to cripple enterprise there than all the other infectious diseases combined. Heretofore a rational prophylaxis and treatment has been impossible, as knowledge concerning the exact rôle of the ameba in the disease and their distribution in nature has been wanting. The methods of cultivating amebas, fully described by Musgrave and Clegg,[1] have now supplied this fundamental knowledge.

According to Musgrave,[2] who has done much important work on amebiasis, all ages, classes, and races are attacked. Children are less susceptible to the disease than adults and are more amenable to treatment. Recently arrived Caucasians are the most liable to the disease. Natural immunity apparently plays an important rôle in determining infection, as many foreigners who have been there for years, have taken no precautions, but have not contracted the disease. This immunity probably depends on many conditions and unfortunately is often transient.

Theoretically, amebic dysentery is a preventable disease. The ideal prophylaxis is to avoid taking anything into the alimentary tract that has not been sterilized by heat. This, however, is not always practicable, is always inconvenient, and is often unnecessary. The following statements suggest the main lines of practicable prophylaxis suitable for the tropics in general.

(*a*) Water: Practically all of the surface water of the Philippine Islands is infected. Cistern water is especially dangerous. Pathogenic amebas have repeatedly been isolated from the city water of Manila. For drinking purposes, distilled water and carbonated and imported waters are the safest. The distilled water, however, is often contaminated by improper handling, either before or after purchasing, and some of it on the market has never been distilled. The carbonated and imported waters, also, are occasionally contaminated and sometimes fraudulent.

For the preparation of food and the washing of dishes, unboiled tap-water should never be used. Every kitchen should be provided with a large hot-water tank, which should be the only source of water for such purposes. For the bath, tap-water is satisfactory, but its entrance or introduction into the rectum or vagina should be carefully avoided. Much of the ice-cream of commerce, especially the "sorbette" sold on the streets, contains encysted amebas, and in this stage the parasites are most dangerous.

(*b*) Vegetables and Fruits: The surface of fruit and uncooked vegetables is probably one of the most fruitful sources of infection. Yet many people who are quite careful about drinking-water, eat these articles without special preparation, except, at most, the rinsing of them in distilled water. To test the efficiency of such cleansing, a head of lettuce, one of the most frequently infected vegetables, was washed four times in distilled water, each washing being more thorough than that given by the average housewife, and the wash-waters then examined. Amebas were cultivated from all four wash-waters. These cultures proved pathogenic to monkeys.

1 Bulletin No. 18, Government Laboratories, Manila, Jour. of Infectious Diseases, 1905, II, No. 2.
2 Bulletin No. 18, Government Laboratories and Jour. Am. Med. Ass'n., 1905, April 8.

Such articles of diet can be rendered harmless by dipping them for a few seconds in boiling water. Few fruits and vegetables are materially damaged by such scalding if they are previously rendered ice-cold by being placed on ice.

(*c*) Soil: This is the natural habitat of amebas. Especial care should be taken of the cleanliness of the hands.

(*d*) Personal Factors: The normal acidity of the stomach is probably one of the preventives of amebiasis, but gastric derangements in warm countries are frequent. Diarrhea, constipation, abnormal conditions in the mouth, and indigestion predispose to the disease. Consequently, great care should be taken to keep the digestive system in good condition. To avoid amebiasis a carefully planned personal hygiene of living should be followed. It is to daily lapses in this hygiene rather than to the general plan of living that infection is generally traceable.

(*e*) Public Factors: Public control of cases is neither necessary nor desirable, but regulations requiring the report of cases would be of value. Soldiers, on coming to this country, are carefully instructed how to avoid the disease. Statistics show that amebic dysentery is only one-tenth as common among them as among civil employees. Provision for the proper instruction of those in civil life would be amply repaid by increased efficiency.

Any routine treatment of the disease is unsatisfactory. Each case must be studied by itself, and the mode of infection, the duration of the disease, and the location of the lesion must be taken into account. A careful record of weight should be kept to determine the success of the treatment.

Acute manifestations are rare early in the disease, but are frequent as exacerbations. They should be treated like acute colitis from other causes: the patient is put to bed, kept perfectly quiet, and given a liquid diet. Pain may be controlled by local applications, opium, cathartics, and cold or sedative enemas.

In the absence of acute manifestations, less severe measures are used. The patient is not confined to bed, and takes gentle exercise. Attempts are made to build up his general health. The following suggests the usual general line of treatment:

(*a*) Diet: The appetite and digestion are often good, notwithstanding extensive ulceration of the intestines. A limited and selected diet should be used in cases in which the stomach and intestines are deranged or the rectum very irritable. In the ordinary type of case, however, a liberal diet is beneficial, irritating and fermentable foods only being avoided. If the cecum is involved, the patient should be put on a liquid diet.

(*b*) Change of Climate: While not a specific, this is valuable, especially in old, emaciated cases. Local treatment, however, must be kept up. If possible, the patient should be given a letter to a physician in the place to which he goes, explaining the nature of his disease.

(*c*) Drugs: No drug by mouth is specific. Bismuth may be useful, harmless, or harmful, according to the way it is used. It impregnates the edges of the ulcers and prevents the action of local remedies. Salines should be used only as active cathartics. Mineral acids are of most value if given in connection with pepsin. Strychnine stimulates the intestine and must be used with care. Quinine is valueless by mouth. Even when malaria is a complication it is best given as an enema.

(*d*) Local Treatment: Enemas of benzoyl-acetyl-peroxide, succinic peroxide, hydrogen peroxide, and silver nitrate have been used. The quinine enema is the most satisfactory. The proper strength of this varies from 1 to 1,500 to 1 to 750. Hydrochloric acid is a better vehicle than sodium chloride. The latter has been shown to cause antiperistalsis and should be avoided, especially where nausea is a symptom. Injections should be given from one to three times daily and the quality of fluid used should be the largest that can be retained from five to fifteen minutes. The enema should be approximate of body temperature. If too hot or too cold it causes encystment of the amebas.

Cold injections, however, have two advantages. After encystment the parasites are flushed from the bowel with greater ease. Tuttle has recently reported good results in amebic dysentery by the frequent administration of simple ice water enemas. Furthermore, although the introduction of an ice-cold enema is often quite painful, it is frequently followed by a rare sense of comfort. Where other methods fail, a tolerance for the quinine injection may sometimes be secured by rendering it ice-cold or by having it preceded by an ice-cold simple enema. Musgrave recently tried the cold quinine injections on twenty old and very resistant cases. The results, while encouraging, have not been universally satisfactory.

The injecting apparatus consists of a glass pressure bottle, connected with five or six feet of soft rubber tubing, a valve stopcock, and a

rectal tube 100 cm. long and from 10 to 15 mm. in diameter. The end of the rectal tube contains a single round hole and is slightly contracted and hardened. Two openings are not so satisfactory, as buckling of the tube is not so easily detected.

In giving the enema, the patient is put either in the Sims position with hips elevated, or in the knee-chest position, and, if possible, the foot of the bed is elevated 12 to 18 inches. The tube and anus are well lubricated and the tube freed from air. The end of the tube is introduced beyond the sphincter, the flow turned on gently and controlled by the finger, after which the tube is introduced 40 to 100 cm. and the flow increased. One to three liters, and in some cases four liters, may be given. When all the fluid is in, the position of the patient is changed so that the fluid may be retained a longer time and reach all parts of the colon.

To relieve bowel spasm, occurring usually during the entrance of the fluid, the rate of flow and the position of the patient are varied. If the bowel is very irritable, a preliminary enema containing a half grain of morphine may be given, half an hour before the quinine enema. A preliminary simple enema is often useful as a routine. An excessively irritable anus may be relieved by a cocaine suppository. This, however, sometimes interferes seriously with the action of the sphincter during the injection. After each injection the exposed parts should be washed with soap and water and an antiseptic solution.

THE RELATION BETWEEN THE FATTED CALF AND THE PRODIGAL SON.

There is a new Richmond in the field and the "Ministerial Alliance," of Toledo, seems again to be up and doing. This in itself is nothing new, as the clerical finger is very apt to be thrust into the municipal pie when work is to be found for idle hands to do. But in this case the cloth seems to have impressed some of the medical fraternity into joining them in a purity crusade, the particular object of which is the abolition of the display of women's hosiery in shop windows.

It seems that up to this time the proscribed stockings have been exhibited by the shopkeepers in flattened masses that were entirely unsuggestive of the dainty curves that they were manufactured to cover and yet to emphasize, or were so arranged that they presented simply formless mounds of variegated colors. Now this has been all changed, and the deft fingers of the "window dresser" have, by the aid of what is technically known to the trade as "forms," produced a display of shapely, well-dressed limbs that would put the ballet of the original Black Crook to shame and which, according to the local press, has drawn the youthful mind from all thoughts of the straight and austere lines of home and mother. In fact, these Toledo youths have been taught by these exhibitions that the line of beauty is a curve, and they have not only caught on to the curve itself, but have found out in ever-increasing numbers that the lines have truly fallen in pleasant places.

Now all this may be, and doubtless is, distressing to the clergy, a good many of whom know from more or less practical experience, the dangers of a temptation that they are accustomed to handle both in the pulpit and out of it. But it is no excuse for the doctor to go from practising to preaching, as he is the one man that should realize that nothing breeds contempt in the youthful mind so quickly as familiarity, and that custom will stale any fictitious ardor that novelty can produce. Thus no one comments on the abbreviated skirts on a bathing shore, or notices the bare arms and necks of the ballroom, but reverse the order of things and there would be a riot on the dancing floor and a masculine mass meeting on the beach.

Ten years ago, before the general adoption of athletic sports, with the concomitant costumes, women, and men, too, clad in these regalia, would have been followed in the streets by a jeering, scoffing crowd of abusive gamins. Today not one of these urchins would turn his head or remove his ever alert faculties from the pensive contemplation of his half-smoked cigarette. At the present time a woman could walk the whole length of Broadway clad in a short tennis skirt without attracting the slightest attention. Should she, however, attempt a crowded crossing in a long dress lifted to the same degree of elevation, or should she be caught in a spring gale on the weather side of the Flat-Iron Building, the price of "rubber" would rise as quickly as her skirts.

The stocking itself, however, is generally deemed a necessity in all civilized communities, and is one of, if not the most, important articles of wearing apparel. Its manufacture by hand gave our mothers and grandmothers infinite satisfaction, and the use of their busy needles killed the *ennui* of many a long winter evening. Now this has passed away, and the blue and gray yarn

products of our ancestors have been supplanted by the looms of commerce, which, under the influence of modern art, have blossomed out into an infinite number of lace, silk and lisle-thread varieties, the sight of which might well have dazzled more seasoned eyes than those of these young Toledo blades.

Apart, too, from its legitimate and accustomed use, the stocking fills many otherwise vacant niches in our domestic economy. Thus it is inseparably connected with our youthful recollections of Santa Claus, as no Christmas would have been complete without it hanging by the chimney. In France, and for that matter in this country, too, it is a favorite receptacle for hoarding money, the one difference being that the Gallic article is usually an old one belonging to an elderly woman, while with us it is apt to be one of the newest fashions which adorns a leg that is seldom bent by age. As a weapon of offense, it has, when filled with sand, become a most dangerous and deadly factor in the hands of the thug, making no noise and leaving no scar, so that, taking one consideration with another, the stocking's lot is not an idle one.

We do not, however, consider that these prodigal sons of Toledo are in any danger, particularly if they become inured to these temptations at an early age. We have all heard of the woman who was able to carry the cow in her arms simply because she began in its infancy, and we do not believe that these wooden calves will grow in weight as the years go by. Moreover, the average youth in a Western city who cannot tell the difference between these "artificial limbs"—no matter how temptingly they are arrayed in open-worked hose, bounded on the north by blue ribbon and on the south by a Louis Quinze slipper with its golden buckle—and nature's form divine, is painfully apt to die of starvation in the struggle of the survival of the fittest, and even if the means of subsistence had been inherited from a less impressionable father, his position in and his influence to the community would consist simply of being a purchaser of illusive and glittering gold bricks, from his more needy and worldly-wise competitors.

As far as our sympathies are concerned in this matter, they lie entirely with the very reverend, the president of the Ministerial Alliance of Toledo, Ohio. He is evidently sincere, and as evidently a wholesale reformer; one who will not dally with the compromise-producing position of Mother Goose and her son John, with one stocking off and one stocking on, but who stands squarely, with both feet bare, on the straight-out-and-out platform of the "Sockless Jerry." We do not wish to impugn his motives, and far be it from us even to suggest that he has civic aspirations, but from his utterances we can imagine him as wearing brogans next his thickened skin, disdaining stockings with all the unconcern required to fit him for a successful political career in bleeding Kansas.

ECHOES AND NEWS.

NEW YORK.

Dr. Ball an Emeritus.—The trustees of Columbia University have made Dr. Alonzo Brayton Ball emeritus professor of clinical medicine, in recognition of his long years of teaching service at the College of Physicians and Surgeons.

Voice Topics.—This is a new journal, a quarterly, edited by Dr. F. A. Bryant, of New York, devoted entirely to the subject of the voice, particularly to stammering and its treatment, in which specialty Dr. Bryant has long held a prominent position. We wish it a hearty success.

New Epileptic Home.—Private enterprise will further the efforts of the State in providing for epileptics at a new sanitarium, to be opened at Glenwood, Dansville, Livingston Co., N. Y., May 15, 1905. The site chosen is a delightful one, in the same general region as Craig Colony, which has shown such excellent results, and there is every reason to believe that the new epileptic colony will prove highly valuable. The terms are to be moderate and training is to constitute a desirable adjunct to hygienic measures.

P. & S. Hospital Appointmentss.—The following is the list from the College of Physicians and Surgeons for the curent week: *Methodist Episcopal, Brooklyn*, First, H. F. Graham, A. C. Hutcheson. *St. Vincent's*, First, W. J. O'Leary, J. S. Brady, C. M. Quinn, D. A. Corcoran. *City*, C. S. Boyd, H. S. Martland, P. C. Pumyea, J. D. Slack. *Monmouth Memorial, Long Branch, N. J.*, J. Z. McDermott. *Newark City*, J. J. Smith; Alternates, C. L. Allers, S. W. Dodd. *German, Brooklyn*, J. J. Valentine. *German, N. Y.*, First, R. M. Ottenberg, A. H. Noehren. Externes, A. M. Hellman, D. J. Kaliski. *Post-Graduate*, I. W. Voorhees.

Cornell University Medical College.—The following members of the Graduating Class of Cornell University Medical College have thus far obtained hospital appointments:—*Bellevue Hospital, Fourth Division*, J. H. Richards, H. P. Groesbeck, A. A. Walker; *N. Y. Post-Graduate Hospital*, B. F. Drake; *German Hospital*, G. L. Rohdenburg, J. H. Cudmore; *Methodist Episcopal Hospital (Seney)*, W. B. Zimmer; *City Hospital*, H. A. Walker, J. M. MacKellar; *Brooklyn German Hospital*, E. O. Darbois, H. B. Avery; *Babies' Hospital*, Elizabeth M. Worts; *Rochester City Hospital*, M. Chapman; *Worcester Memorial Hospital*, L. E. Todd, A. L. Bedford; *Robert Packer Hospital (Sayre, Pa.)*, H. I. Andrews, Jr.; *Rhode Island General*, S. N. Smith, Jr.; *St. Vincent's Hospital*, A. M. Wright.

Meningitis Decreasing.—Commissioner Darlington, of the Board of Health, last Tuesday made public figures showing that the death rate for last week was considerably less than it was the corresponding week last year and that the deaths due to cerebrospinal meningitis were

twenty-one less than the previous week. The death rate for the week ended Saturday at noon was 20.11 per thousand, while for the corresponding week of 1904 it was 25.76. Week before last there were 110 deaths due to cerebrospinal meningitis, while for the previous week the number was 131. In the corresponding week of last year the deaths resulting from the same ailment were 29. Pneumonia caused 232 deaths last week, against 427 for the same week last year. It is pretty well recognized that if more autopsies could be made on so-called meningitis cases it would be found that from 25 to 30 per cent. of the deaths accredited to that disease was due to other ailments.

New York County Medical Association.—At the next regular meeting of the New York County Medical Association, to be held on April 17, 1905, at the New York Academy of Medicine, 17 West Forty-third Street, Dr. Francis Huber will read a paper on: "The Clinical Features and Treatment of Cerebrospinal Meningitis." This paper is to be discussed by Dr. Abraham Jacobi, Dr. L. Emmett Holt, Dr. Thomas Darlington, Dr. Harlow Brooke, Dr. Hermann Biggs, and other distinguished authorities in the city. The second paper will be read by Dr. William B. Pritchard, on: "Galvanism as a Curative Agent in the Treatment of Nervous Diseases: Its Equipment and Technic." This paper will be discussed by Dr. George W. Jacoby, Dr. William J. Morton, Dr. J. J. MacPhee, Dr. Milton Franklin. The Association has rarely presented such an interesting program as the foregoing, and invites the medical profession to its meeting.

Lunacy Budget Itemized.—A highly desirable curb has been put on the State Lunacy Commission, which a short time ago voted to buy the farm of I. V. Baker, of Washington County, as the site for an insane asylum. In years past the commission has been in the habit of getting large lump sums from the legislature without specifying objects. Last year, for instance, the commission received a lump sum of $1,203,000 for making improvements, etc., at the various institutions. Following the Baker site scandal and the, as yet unexplained, disclosure of a $455,000 deficiency, the board has had to make an itemized statement this year of the cost of proposed improvements and the items have gone into the form of a single bill. The Ways and Means Committee of the Assembly directed the Lunacy Board to do this. The $1,152,566 asked for is divided into 146 items ranging from $60,000 to $242,000. It is surmised in some circles that the change is due to Governor Higgins. Besides showing the public what the commission purposes to do this itemized method gives the Governor an opportunity of cutting out appropriations intelligently. The bill, however, does not prohibit this board taking away from one item and adding to another. Among the items are the following: Reception hospital in New York, $150,000; two hospitals for acute insane, each to accommodate not less than eighty patients, and to be located at such established State hospitals as the commission may determine, $144,000; construction and furnishing of a building to accommodate at least 440 patients of the chronic class at one of the established hospitals to be designated by the commission, $242,000. The anomalous appointments of three immigration inspectors, drawing salary, who are not allowed to inspect by the Federal authorities still pass without comment. Some more Odellism.

Deficient Children in the Schools.—Investigation has shown that there are thousands of children admitted to the public schools every year who are absolutely unfit mentally, morally and physically to cope with the conditions which they meet. Examinations are being conducted along these lines by Dr. Luther H. Gulick, director of physical training for the city's educational institutions, and his assistant, Dr. Asa R. Brown.

"Fully ten per cent. of the pupils of the public schools," said Dr. Gulick last week, "should have special attention. I should say that from five to ten thousand of the two hundred and fifty thousand children in the schools of this city are so deficient that they should have special instruction in small classes in order to fit them for any part in life, and they should have the most tender care. With the funds now available," continued the Doctor, "it is not possible to conduct examinations on the scale which should be followed. Only the pupils whose appearance is such that the teachers are able to recognize that something is wrong with them are examined. The time will come, though, when every child upon entering school will be inspected by physicians so that it may be determined at the outset if he has anything the matter with him which would interfere with the prosecution of his studies. If a boy has weak eyes the authorities will see that he is provided by his parents with glasses, and instructions could be given that he be placed in a front seat. If a child is partially deaf every care should be taken to make sure that he is so placed that he can hear all that is said. Many children come to our schools who are beginning to develop curvature of the spine. A minute of such a fact could be made and the teacher could be advised of the condition so that the boy could be urged to sit correctly. Such care as that might result in the pupil gradually overcoming a tendency toward deformity."

With reference to the widely circulated statement that seventy thousand children go to school hungry, Dr. Gulick said "that there are very few such cases as that. Nevertheless if children are sent to school hungry it should be the duty of the teacher to find out that fact and by conference with the parents or in some other way make an arrangement by which the child shall live under better conditions. It is manifestly not the best plan to keep these deficient children in the regular classes. By so doing the progress of the other pupils is retarded and the backward ones do not get the instruction which they should have. You ask me as to the mental state of the two per cent. of the school children which I have mentioned. They are of course considerably in advance of children who are usually cared for in institutions and asylums provided by the State, yet they are incapable of keeping up to the grades in the public schools. They cannot be made to conform to the regular courses of instruction, yet by special care they can be made useful and self-supporting members of society. They should be taught first of all to labor with their hands, for by that means they will be able to earn their living. They can of course learn to read and write and to cipher a little. They can at least acquire enough arithmetic to enable them to count their money. It is impossible for teachers in regular classes which consist of about fifty pupils to do any work along these lines. Not more than fifteen of such pupils should be assigned to one teacher, for each one should have individual instruction and study. At the present time there are in all eighteen of these classes, averaging fifteen each, or, in other words, there are facilities for taking care of two hundred and seventy backward pupils, although I estimate that there are from five thousand to ten thousand children who require special training and attention." To substantiate the conclusions which he had reached Dr. Gulick called attention to the investigations conducted by his associate. Examinations of 2,084 children were made by Dr. Brown, which are used as a basis for the policy advocated with regard to the needs of the schools.

PHILADELPHIA.

Meningitis Reaches Pittsburg.—Pasquale de Costa, a boy, aged fifteen years, who had recently come from New York, introduced this disease into Pittsburg. His case was reported to the Board of Health and he was at once removed to the Municipal Hospital, where he died.

Dr. Osler will Address Students.—Under the auspices of the Stillé Medical Society of the University, Dr. Osler will deliver a lecture to the students of the University of Pennsylvania, upon the "Student Life," on April 19, 1905. Nelson W. Janney is chairman of the committee appointed to receive Dr. Osler.

College of Physicians.—The society met April 5, 1905. The members listened to the reminiscences of the earlier experiences of Drs. S. Weir Mitchell, W. W. Keen and John S. Billings. After the meeting the members went to the University Club, where the evening's entertainment was concluded with a smoker.

Obstetrical Society.—This society met April 6, 1905. The scientific program was opened by Dr. G. E. Schoemaker with a paper on "Some Operative Results." It was discussed by Dr. Noble, Dr. Norris and Dr. Hirst. Dr. B. C. Hirst read the next paper which was entitled "A Contribution to the Efficiency of Plastic Operation in the Genital Canal."

Woman's Medical College of Pennsylvania.—Gertrude A. Walker, clinical Professor of Ophthalmology, has resigned her position and Anina C. Rondinella has resigned as Demonstrator of Ophthalmology and Assistant Demonstrator of Pathology. The appropriation received from the State has apparently wiped out the ill feeling that existed between the hospital and the college departments of the institution.

Smallpox Infests a Town.—Mount Union, a town of 1,000 inhabitants in Huntington County, has quarantined nearly 100 cases of smallpox. The epidemic broke out some time ago and it was at first diagnosed as being chickenpox. Its spread caused the State Board of Health to send the quarantine officer to make an examination. The inspector reported the disease as smallpox and the infected houses were at once isolated. Before the visit of the inspector the affected individuals were permitted to mingle with the non-diseased persons, so that trouble is anticipated in stamping out the epidemic.

New Buildings for the Municipal Hospital.—Bids will soon be advertised for the construction of two new buildings on the new Municipal Hospital grounds. Each structure will be built of brick, will be two stories high and will contain two wards, and accommodating 300 patients. One building will be reserved for scarlet fever patients and the other for diphtheria. Arrangements will be made to disinfect every person or article that enters or leaves the building. There is available for the construction of these buildings $900,000. The smallpox ward, which has been building for nearly a year, is now complete.

Mayor's Message Refers to the Work Done by the New Bureau.—In his message to the council the Mayor calls attention to the fact that the Department of Public Health and Charities has been in existence since 1903 only, and in that time the Department has wiped out smallpox and has lowered the death-rate of other diseases. He points out to the council that something should be done so soon as possible to relieve the congestion at the Philadelphia General Hospital for the Insane and the Hospital for the Indigent. He informs the council that plans and specifications have been drawn for the construction of an administration building for the insane and one for the indigent, but, he is of the opinion that all the insane cannot be quartered there.

A Free Bed for Each $5,000 State Aid.—The Senate Appropriation Committee has inserted a provision in the bill for several Allegheny County Hospitals which provides as follows: That in consideration of the appropriation there shall be maintained a free bed for each $5,000 appropriated. The Mayor or the Director of the Department of Public Safety or the Director of the Department of Charities of the proper city will issue a certificate to the applicant to occupy these beds. The certificates are then to be presented to the hospitals' officer who will pass upon the propriety of such patients.

Conference of Anatomists.—The first session of the Conference of American Anatomists was held April 11 in Wistar Institute. Anatomists from all parts of the country were present. The subject considered at the meeting was the advisability of selecting a central institute for cooperative research, the board of managers of the Wistar Institute offering that institution for the purpose. Those in attendance were: Dr. Llewellyn F. Barker and Dr. Henry H. Donaldson, Chicago University; Dr. Simon H. Gage, Cornell University; Dr. G. Carl Huber and Dr. J. P. McMurrich, University of Michigan; Dr. George S. Huntingdon, Columbia University; Dr. Franklin P. Mall, Johns Hopkins University; Dr. Charles S. Minot, Harvard University; Dr. George A. Piersol and Dr. Edwin G. Conklin, University of Pennsylvania.

Houses in Which Meningitis Exists to be Placarded.—Dr. Benjamin Lee, secretary of the State Board of Health, has ordered that physicians report all cases of this disease to the health authorities and that the houses in which the malady exists shall be placarded. The sign shall contain a warning to the public asking them not to enter except by the permission of the Board of Health. Upon the placard will be written in large letters "Epidemic Cerebrospinal Fever; Spotted Fever—an Infectious and Communicable Disease." The presence of the poster on the house will not establish a quarantine of the inmates of the premises but merely a warning to the public not to enter. After the removal or the death of the patient the place shall remain placarded for at least one week.

Cerebrospinal Meningitis Discussed.—In a paper read before the American Philosophical Society, Dr. A. C. Abbott said that the present so-called epidemic began about September 8, 1904, and since that time 51 cases had been reported, but this figure includes the tuberculous meningitis also. From the widely separated foci in which the disease developed he inclines to believe that it is not contagious. In only four instances did he find that more than one case existed in the same house. The death-rate is about 35 per cent. in this epidemic. In discussing this paper Dr. Tyson said he has been trying to collect data with the view of drawing out a similarity between the meteorological conditions of the winter of 1864-65 and the present. They were remarkably cold. Dr. Cleeman said in Russia where it is very cold they have never had an epidemic of meningitis.

Governor Vetoes Consumptive Camp Appropriation.—In giving his reasons for the veto, he said, the bill opened a new field for establishment of charities for whose maintenance the State would be held responsible. "If we are to provide for consumptives because they are likely to be fatal and because they are likely to injure others we may some time be called upon to take care of individuals suffering with smallpox, leprosy, yellow fever, bubonic plague, typhoid fever or pneumonia." The bill makes no distinction between the class of cases treated. He is of the opinion that it should be confined to the poor. The commission which,

according to the bill, shall contain two practising physicians, he believes should be made up of experienced business men and artisans rather than of men with professional experience. To create a commission would take away important matter from a department recently formed by the passage of a bill.

CHICAGO.

Cerebrospinal Meningitis.—Only one or two cases of malignant spinal meningitis have come to the attention of the City Health Department up to this writing. It is said there were several suspicious cases, but these turned out to be not of the contagious form. There is no danger of an epidemic.

Fire at the Illinois Southern Hospital for the Insane.—A fire broke out at this institution, damaging the power house to the extent of $5,000. No casualties occurred. The patients were taken from their rooms and marshaled in halls in case it proved necessary to remove them from the building.

Inspection of Joliet Penitentiary.—It is said that tuberculosis has spread so rapidly among the prisoners in this institution, being attended by a largely increased mortality, that the State Board of Health has undertaken an investigation. It is thought that a crisis has been reached in the efforts of the prison authorities to combat the disease under present conditions, and that unless better sanitation is established, it will be practically impossible to prevent the spread of the disease to the prisoners now there, and to others who may be sentenced to Joliet in the future. Among those who will conduct the investigation are the President of the State Board of Health, Dr. George W. Webster; Dr. J. H. Long, Professor of Chemistry in Northwestern University Medical School; the Secretary of the State Board of Health, Dr. J. A. Egan, and Mr. J. A. Harmon, of Peoria, the Sanitary Engineer of the Board. Dr. Webster is quoted as saying, "We have no accurate knowledge of sanitary conditions at Joliet as yet, but we know they are far from perfect. In instituting an investigation, we are acting on the belief that the State of Illinois has no more right carelessly to infect a convict with tuberculosis than it has to take him out and hang him." Professor Long will make an analysis of the air in different parts of the prison, where it seems that lack of ventilation promotes the spread of infection.

When Shall We Be Chloroformed?—At a recent meeting of the Physicians' Club this subject was discussed both by laymen and physicians. Franklin MacVeagh replied to the question, "When Shall the Business Man Shuffle Off?" He said he is willing to feed out the 95 per cent. of incompetents to the Osler wolves in order to save the five per cent. who are fitted to survive. Only five per cent. of men who embark in business succeed; the 95 per cent. fail. They cannot meet the competition, but perhaps they could have done well as college professors, some of them. Prof. Geo. E. Vincent, of the University of Chicago, replying to the query, "When Shall the Professor be Doped?" introduced his graver remarks by an anecdote. A Scotch exhorter asked his congregation how many wanted to go to Heaven. All responded except one canny old fellow. "Don't you want to go, Sandy?" demanded the exhorter. "Aye," responded Sandy, "only I don't care to be personally conducted." He declared that the older a professor got, the better fitted he was for his business, since the ideal of the college professor is to be permanently dogmatic. Bishop Samuel Fallows considered the point, "When Shall We Administer Chloroform to the Clergyman?" He believes in persons getting out of the world when it is a decent time; but the days of man are not the proverbial three score and ten, but 120 years. This is scriptural, and he is glad to see it is also the present scientific idea. The subject was further discussed by Dr. Wm. Allen Pusey, Mr. I. K. Pond, Mr. Joseph W. Errant, Mr. W. D. Nesbitt, and Joseph L. McMahon.

GENERAL.

Meningitis in Silesia.—There is an epidemic of cerebrospinal meningitis at Kattowitz, Prussian Silesia. There have been 236 cases, of which 133 have proved fatal.

Ireland Physicians Honor Dr. Osler.—Dr. William Osler, Regius Professor of Medicine at Oxford University, has been elected an Honorary Fellow of the Royal College of Physicians of Ireland.

Meeting of Texas State Board of Medical Examiners.—The Board of Medical Examiners for the State of Texas (Regular) will hold its next meeting in Austin, Texas, May 2, 3, 4 and 5, 1905, for the examination of applicants.

A Congress of Midwives.—The midwives of Italy are shortly to meet in a national congress to be held at Milan. Intimations of adhesion have been received from the midwives' societies of Turin, Genoa, Milan, Bologna, Florence, Rome, and Cremona. The municipality of the city and the council of the province of Naples have promised their support. Addresses will be delivered by Professors A. Guzzoni, of Messina, E. Pestalozza, of Florence, and L. Bossi, of Genoa.

Lepers in Canada.—The annual report presented to the Federal Parliament of the Dominion of Canada by Dr. Smith, Medical Superintendent of the Leper Hospital, at Tracadie, New Brunswick, shows that there are now fifteen residents in the institution. Of these ten are males and five females, the youngest patient being ten years and the oldest sixty-two years. Chaulmoogra oil has been used during the last two years with some success. Dr. Smith, who has carefully examined the question, expresses the conviction that leprosy is communicable through contagion.

The Medical Profession in Italy.—In 1861 the total number of medical practitioners in Italy was 18,047, the proportion to population being 8.8 per 10,000. In 1861 the number had fallen to 18,420, a proportion of 0.6 per 10,000 inhabitants. In 1881 it was 18,950, or 6.6 per 10,000. In 1901 it was 22,168, or 6.8 per 10,000. The distribution of practitioners is somewhat unequal, the proportion being higher in the south (7.7 per 10,000) than in the north (6.1 per 10,000). In the province of Udine the proportion is lower than anywhere else in Italy, there being only one practitioner to 2,831 inhabitants; in that of Naples it is highest, there being two doctors to 732 inhabitants.

The West Virginia State Medical Association.—This association will hold its thirty-eighth annual meeting at Wheeling, W. Va., May 24, 25 and 26, 1905. The committees are unsparing in their efforts to make this meeting a memorable one for scientific interest. The social features will be fully equal to the facilities of the metropolis and the well known zeal and liberality of the members residing therein. Members who are in possession of interesting anatomical and pathological specimens are particularly requested to bring them along. If unable to come, please send them to Dr. S. L. Jepson, chairman of the committee on arrangements. They will be well taken care of and returned in safety. Titles of papers to appear on the official program must be

in the hands of the secretary not later than May 3, 1905. The usual arrangements for special railroad and hotel rates will be made.

The Missouri Valley Medical.—The excursion to the Portland meeting of the American Medical Association will leave Kansas City, St. Joseph and Omaha on June 27, via the Burlington and Northern Pacific Railways. A week will be spent in Yellowstone Park and one or two days in Seattle and Tacoma. A cordial invitation is extended to all medical men and their friends to join a congenial party and make this the most delightful trip of the season. The entertainment in Portland promises to excel all previous events, and the Lewis and Clark Exposition will be in progress at the same time. Rate for the round trip to Portland, $45. Yellowstone Park trip, hotels and all expenses, $49.50. Pullman, berth for two, $11.50 to Portland, allowing stop-over at the Park. A second special train will leave Kansas City on July 6 for the accommodation of those who do not care to visit Yellowstone Park. Full information and berth reservations may be obtained by addressing the secretary, Dr. Chas. Wood Fassett, St. Joseph, Mo.

Boston Medical Library Meetings in Conjunction with the Suffolk District Branch of the Massachusetts Medical Society.—The last meeting was held at the Library, Wednesday, April 5, 1905. Dr. F. B. Harrington was in the chair. The subject for discussion was Results in Non-Traumatic Surgery of the Brain and Spinal Cord. This included exploratory, palliative and radical operations for intracranial and intraspinal lesions, either objective or functional. Operations for the immediate results of trauma, for meningitis, for hydrocephalus and encephaloceles, etc., were excluded. Drs. James J. Putnam and E. A. Codman reported observations on actual results obtained at the Massachusetts General Hospital up to the present time; Drs. William N. Bullard and F. B. Lund reported results at the Boston City Hospital. Dr. Walter B. Odiorne described three very interesting cases of intraspinal tumors operated on by Dr. John C. Warren. Dr. G. L. Walton spoke of the findings at autopsy in cases of brain tumor and their bearing on the selection of operable cases. Dr. T. C. Munro and others took part in the discussion that followed.

Post Graduate Instruction in Cologne.—The Akademie für praktische Medizin, in Cologne, is founded to give post-graduate instruction to medical practitioners who have the advantage of following the practice of the Bürger Hospital, 510 beds; the Augusta Hospital, 480 beds; the Lindenburg Hospital, 480 beds; the Children's Hospital, 100 beds; the Ophthalmic Institute, 50 beds; and the Midwifery Training Institute, 70 beds (with 2,500 confinements annually). We are informed that during the first winter term which commenced in October last, 150 German medical practitioners were registered, and that at the end of January a special course for military medical men was attended by 30 staff district officers, and 5 district assistant medical officers sent by the ministry. On May 15 a fortnight's course for foreign practitioners will begin. Lectures will be given on medicine, children's diseases, pathological anatomy, surgery, orthopedics, gynecology and obstetrics, dermatology and syphilis, laryngology and otology, ophthalmology, psychiatry, hygiene and biology, and social medicine. Further particulars can be obtained on application to the secretary of the Cologne Academy, Portalgasse 2, Cologne.

French Congress of Climatotherapy.—As has already been announced in the *British Medical Journal*, the French Congress of Climatotherapy and Urban Hygiene, will hold its second meeting at Arcachon, April 24 to 28, under the presidency of Professor Renaut, of Lyons. The closing meeting will be held at Pau on April 29. In the Section of Climatotherapy the following questions will be discussed: The climatology of the French Atlantic littoral; pretuberculous and tuberculous cases in relation to forest and marine treatment; sanatoriums and seaside hospitals of the French Atlantic littoral; indications and contra-indications of the climate of Pau. In the Section of Urban Hygiene the questions to be discussed are mainly of local interest. Excursions will be made to the forest around Arcachon, Biarritz, Hendaye (Sanatorium) and Fontarabia, Bayonne and Cambo. A reduction of 50 per cent. is granted by all the French railways to titular members (subscription 20 francs) and to their wives and children registered as associate members (subscription 10 francs). The latest date for inscription is April 5. All applications for membership should be addressed with the amount of the subscription, to the general treasurer, Dr. Dechamp, Villa Tibor, Arcachon. For information relative to railway fares, tickets, hotel accommodation, etc., application should be made to the general secretary, Dr. A. Festan, Villa David, Arcachon.

National Association for Study and Prevention of Tuberculosis to Meet in May.—The most important meeting of tuberculosis specialists ever held in this country will take place in Washington on May 18 and 19, when the National Association for the Study and Prevention of Tuberculosis will convene and plan a great campaign to rid the United States of the most terrible scourge that now besets humanity —consumption. This meeting means much for the future of the country. Here and there local societies have undertaken to grapple with the tuberculosis problem, State and city health boards have fought the devastating plague with more or less vigor, and private philanthropy has assisted in the battle in no small measure, but not until now has there been an authoritative national body, composed of America's most distinguished experts—such men as Drs. Osler, Trudeau, Biggs, Bowditch, Sternberg, Flick, Knopf, and others. These leaders, with scores of other physicians and laymen of exceptional training and influence, have joined forces to take up the tuberculosis problem in all its aspects—sociological, pathological and bacteriological, clinical and climatological. Pulmonary tuberculosis, or consumption of the lungs, now costs more than one hundred thousand lives and a money loss of millions of dollars every year in the United States, and the leaders of the national movement for its eradication realize that their task is no small one. Yet the most conservative among them agree that the disease can be controlled and in the course of time virtually stamped out. This is their aim.

Nebraska Medical Legislation.—The medical profession of Nebraska has again passed through the throes of its biennial labor, and medical legislation for this year is over. The McMullen Bill is a clear, legal definition of what constitutes a physician and how one shall be recognized as such. It provides that any one shall be considered a legal physician, and required to apply for and receive a license, after a successful examination, who holds himself out to the public as being able to diagnose human disease,

who prescribes any form of treatment for the palliation, relief or cure of any physical or mental ailment, with the intention of receiving compensation therefor, or one who uses any title to indicate that he treats human diseases, or one who maintains an office for the diagnosis or treatment of disease. It also provides that any one who thus holds himself out as a physician and who does not possess a license shall be fined, on conviction, $50 to $300 and costs. This bill was passed by the House without amendment. It covers every phase of medical practice and was modeled upon the ideal medical bill, first suggested by Dr. Van Meter, of Colorado. The Nebraska Senate amended the Bill so that the Osteopaths were to be exempted from examination in all questions relating to the administration of drugs and the treatment of disease. This amendment was concurred in by the House and the amended Bill has been sent to the Governor for his signature. The profession has every reason to believe that he will sign the Bill. If he does, Nebraska will have an ideal law. The Osteopaths are already compelled by law to pass an examination upon physical diagnosis and the practice of medicine, exempt only from examination on materia medica.

P.S. The Governor vetoed the Bill.

Mississippi Medical and Surgical Association (Colored).—The following is the official program of next meeting, April 26 and 27, 1905: "President's Address," by Dr. J. M. May, of Westside; "Reminiscences of Twenty Years of Practice," by Dr. J. B. Banks, of Natchez; "Address in Medicine," by Dr. A. J. Lopez, of Lake Providence, La.; "Treatment of Diseases of Eye, Ear, Nose and Throat by General Practitioner," by Dr. A. W. Dumas, of Natchez; "Syphilis in Negro Children," by Dr. H. H. Procter, of Vicksburg; "Obstetric Complications," by Dr. T. V. James, of Columbus; "Genito-Urinary Diseases of a Surgical Nature, case Reports," by Dr. L. T. Miller, Yazoo; "Pulmonary Tuberculosis in the Negro and its Alarming Mortality," by Dr. S. D. Redmond, of Jackson; "Marasmus and Rachitis," by Dr. J. B. Banks, of Natchez; Address in Surgery, "Suppurative Appendicitis," by Dr. A. W. Newman, of New Orleans; "Address," by Dr. Jno. F. Hunter, Secretary, State Board of Health of Mississippi; "Gunshot Wound of Abdomen and Thorax—Operation; Enormous Hydrothorax, Paracentesis and Subsequent Empyema—Operation, Recovery, Presentation of Patient," by Dr. H. E. Connor, of Brookhaven; "Advances in Therapeutics," by Dr. C. Henri Woode, of Vicksburg; "Advances in Surgery," by Dr. C. W. Raines, of Clarksdale; "Points of Diagnosis in Diseases of the Brain and Nervous System," by Dr. D. W. Sherrod, of Macon; "Respiratory Diseases," by Dr. J. A. Miller, of Vicksburg; "Malaria and Malarial Diseases," Treatment, by Dr. J. H. Miller, of Greenville; "Enucleation of Large Tumors of the Abdomen," by Dr. B. F. Fulton, Greenville; "Venereal Diseases in the Negro," by Dr. C. S. Waters, of Moss Point; "Local Treatment of Gynecological Cases," by Dr. L. F. Miller, of Canton; "Syphilitic Manifestations in the Skin," by Dr. E. W. Moore, of Jackson; "Bronchopneumonia in Children," by Dr. Georgia Procter, of Vicksburg; "Traumatic Disease of Joints," by Dr. S. A. Miller, of Canton; "Chronic Interstitial Nephritis," by Dr. J. E. Beale, of Jackson.

American Proctologic Society.—The seventh annual meeting will be held at Pittsburg, Pa., May 5 and 6, 1905, at the Hotel Henry, Fifth Avenue and Smithfield Street. The profession is cordially invited to attend all meetings, at which the following papers will be read: "Malignant Disease of the Rectum and Its Treatment," by Dr. G. B. Evans, of Dayton; "The Ambulant Treatment of Internal Hemorrhoids," by Dr. C. F. Martin, of Philadelphia; "Is Fissure of the Os Uteri analagous to Anal Fissure? The Symptomatology, etc., of the Former, with a Consideration of it as a Cause of Sterility," by Dr. William Bodenhamer, of New Rochelle, N. Y.; "Instrumental Massage in the Treatment of Acquired Valvular Hypertrophy (Obstipation)," by Dr. T. C. Martin, of Cleveland, O.; "A Report of Cases," by Dr. Leon Straus, of St. Louis; "Urethrorectal Fistula, with Report of a Case," by Dr. W. M. Beach, of Pittsburg; "Tuberculous Fistulas of the Rectum, and the Repair of Extensive Injuries of the Bowel following Same," by Dr. Howard A. Kelly, of Baltimore; "The Operative Treatment of Tuberculous Fistulas in Tuberculous Subjects; with Report of a Case," by Dr. J. Coles Brick, of Philadelphia; "Formalin in the Treatment of Diseases of the Rectum, Sigmoid, and Colon," by Dr. John L. Jelks, of Memphis; "A Further Contribution to the Study of Pruritus Ani, with Special Reference to Local Treatment," by Dr. Lewis H. Adler, Jr., of Philadelphia; "Profound Secondary Anemia Due to Rectal Diseases: Report of Six Cases," by Dr. D. H. Murray, of Syracuse; "Personal Experience in the Employment of Mechanical Vibration in the Treatment of Rectal Diseases," by Dr. William L. Dickinson, of Saginaw; "The Office Treatment of Rectal Diseases and its Limitations," by Dr. James P. Tuttle, of New York; "Two Cases of Imperforate Anus," by Dr. T. L. Hazzard, of Pittsburg; "Amebic Dysentery: Report of Recent Investigations in Its Treatment," by Dr. Samuel T. Earle, of Baltimore; "Artificial Anus: Practical Suggestions Regarding its Making and Closing," by Dr. S. G. Gant, of New York; "The Pathology of External Hemorrhoids," by Dr. Louis J. Krouse, of Cincinnati; "The Treatment of Rectal Prolapse," by Dr. A. Tierlinck, of Gand, Belgium; "A Summary of Twenty Radical Operations upon the Rectum under Local (Sterilewater) Anesthesia," by Dr. A. B. Cooke, of Nashville.

American Medico-Psychological Association.—The sixty-first annual meeting of the American Medico-Psychological Association, will be held at San Antonio, Texas, April 18, 19, 20 and 21, 1905, in the Menger Hotel. The program is as follows: "The Unity of the Manifestations of Insanity," by Dr. H. A. Tomlinson, St. Peter, Minn.; "Perils of Psychiatry," by Dr. W. A. Gordon, of Winnebago, Wis.; "Neuropsychic Asthenia and its Psychiatric Aspects," Chas. H. Hughes, M.D., St. Louis, Mo. "The Prevention of Insanity in its Incubation by the General Practitioner," by Dr. J. T. W. Rowe, of Ward's Island, N. Y.; "Final Report upon the Relation of Insanity to Cardiac Diseases," by Dr. Arthur McGugan, of Denver, Col.; "Expert Testimony on the Doctor in Court," by Dr. D. R. Wallace, of Waco, Texas; "Korsakoff's Psychosis," by Dr. A. W. Hurd, of Buffalo, N. Y.; "The Therapeutic and Medico-Legal Features of Drug Addictions," by Dr. George P. Sprague, of Lexington, Ky.; "Melancholia, The Psychical Expression of Organic Fear," by Dr. J. W. Wherry, of Clarinda, Ia.; "Psychoses of Anemia," by Dr. Frank P. Norbury, of Jacksonville, Ill.; "Mysophobia, with Report of

Case," by Dr. John Punton, of Kansas City, Mo.; "Cholemia; Its Relations to Insanity," by Dr. R. J. Preston, of Marion, Va.; "A Case of Huntington's Chorea," by Dr. Harry W. Miller, of Taunton, Mass.; "Nature of Practice in Neurology," by Dr. Arthur McGugan, of Denver, Col.; "The Liver and its Relations to Mental and Nervous Diseases," by Dr. Charles G. Hill, of Baltimore, Md.; "As to Surgery for the Relief of the Insane Condition," by Dr. M. E. Witte, of Clarinda, Ia.; "Observations on Some Recent Surgical Cases in the Manhattan State Hospital, East," by Dr. John R. Knapp, of Ward's Island, N. Y.; "A Preliminary Report of the Gynecological Surgery in the Manhattan State Hospital, West," by Dr. LeRoy Broun, of New York City; "Some Observations on the Relations of the Gastro-Intestinal Tract to Nervous and Mental Diseases," by Dr. Robert C. Kemp, of New York City; "Tuberculosis Among the Insane," by Dr. C. Floyd Haviland, of Ward's Island, N. Y.; "Masked Epilepsy," by Dr. Gershom H. Hill, of Des Moines, Ia.; "Epilepsy as a Symptom," by Dr. Everett Flood, of Palmer, Mass.; "Clinical Notes on Dementia Paralytica," by Dr. E. C. Dent, of Ward's Island, N. Y..

Kansas Medical Society.—The thirty-ninth annual meeting of this society will be held in Hartman's New Dancing Hall, Wichita, Kansas, Wednesday, Thursday and Friday, May 3, 4, and 5, 1905, with the following program: Surgical Clinic at Wichita and St. Francis Hospital at 9 A.M. and 12 M. "Psychics in Practice of Medicine," by Dr. P. S. Mitchell, of Iola; "Exophthalmic Goiter," by Dr. S. S. Glasscock, of Kansas City; "Report of Detached Retina," by Dr. G. W. Maser, of Parsons; "The Physical Basis for Fatigue," by Dr. J. M. Latta, of Wichita; "Paper," by Dr. H. O'Donnell, of Ellsworth. President's Address; Medical Clinic and Demonstration of Cases; "Preventative Medicine," by Dr. S. J. Crumbine, of Topeka; "Treatment of Deformities," by Dr. J. Naismith, of Lawrence; "Surgical Diseases of the Gall Bladder," by Dr. G. C. Purdue, of Wichita; "Paper," by Dr. Frank L. Abbey, of Newton; "The Country Practitioner as a Surgeon, by Dr. B. R. Riley, of Coyville; "Intestinal Obstruction," by Dr. C. A. Smith, of Yale; "Some Therapeutic Axioms," by Dr. G. H. Hoxie, of Lawrence; "Medical Education," by Chancellor Frank Strong, of Lawrence; "Hyper-Acute Mania," by Dr. T. C. Biddle, Topeka; "Report of a Case Resulting from Railway Injury, by Dr. L. H. Munn, of Topeka; "Practical Experience With the Use of Alkaloids," by Dr. H. Humfreville, of Waterville; "Traumatic Neurosis," by Dr. W. S. Lindsay, of Topeka; "Address, Hypertrophied Prostate," by Dr. Chas. E. Bowers, of Wichita; "What Every Doctor Ought to Know About the Eye," by Dr. J. R. Scott, of Garnett; "Paper," by Dr. A. L. Cludas, of Minneapolis; "Esophageal Stricture," by Dr. D. W. Basham, of Wichita; "Paper," by Dr. H. H. Brookhart, of Scammon; "The Border Land in Nervous and Mental Phychosis," by Dr. C. C. Goddard, Leavenworth; "My First Fractures," by Dr. J. D. Clark, of Wichita; "Paper," by Dr. H. L. Clark, of La Cygne; "The Scientific Basis of Medicine," by Dr. J. F. Axtell, of Newton; "Disease of the Pancreas," by Dr. Longenecker, of Kansas City.

Medical Association of the State of Alabama.—The Medical Association of the State of Alabama will hold its next annual meeting in the city of Montgomery, commencing on Tuesday, April 18, at 12 o'clock noon, and will continue in session for four days. The following program has been arranged: "Jerome Cochrane Lecture," by Dr. Robert Abbé, of New York, N. Y.; "Monitor's Address," by Dr. William G. Somerville, of Tuscaloosa; "The Responsibilities of the Physician in Obstetrical Work, and How to Meet Them," by Dr. J. G. Palmer, of Opelika; "Iritis," by Dr. L. G. Goodson, of Birmingham; "Surgery of the Kidney, and Its Application to the Cure of Disease," by Dr. Harry T. Inge, of Mobile; "Lobar Pneumonia and Its Treatment," by Dr. W. S. Britt, of Eufaula; "Surgery of the Arteries," by Dr. Rudolph Matas, of New Orleans, La.; "Cystoscopy and Ureteral Catheterization in Gynecology," by Dr. H. Dawson Furniss, of New York, N. Y.; "The Non-Surgical Treatment of Uterine Displacements," by W. P. McAdory, M.D., of Birmingham; "The Choice of Methods in Removing Uterine Fibro-Myomata," by Dr. LeRoy Broun, of New York, N. Y.; "Electric and Radiant Energy as Therapeutic Agents," by Dr. E. T. Camp, of Gadsden; "Varicose Veins, and Their Surgical Treatment," by Dr. S. G. Gay, of Selma; "Modern Therapeutics," by Dr. Henry A. Moody, of Florence; "Therapeutics," by Dr. Henry N. Rosser, of Birmingham; "Tuberculosis," by Dr. Edgar A. Jones, of Raton, N. M.; "Recent Developments in the Study of Diarrheal Diseases of Infancy and Childhood," by Dr. S. W. Welch, of Talladega; "The Present Status of Gall-Bladder Surgery," by Dr. Robert N. Pitts, of Montgomery; "Cystitis," by Dr. W. D. Gaines, of LaFayette; "Some Observations as to the Causes and Treatment of Puerperal Infection," by E. M. Prince, of Coleanor; "Heart Treatment," by J. D. Heacock, of Birmingham; "Hip-Joint Complications of Typhoid Fever," by Dr. McLean Pitts, of Selma; "Syphilis," by Dr. A. G. Douglas, of Birmingham; "Tuberculous Peritonitis," by Dr. N. G. Clark, of Ensley; The Contract Doctor," by Dr. George A. Hogan, of Bessemer; "Alcohol as a Medicine," by Dr. E. H. Sholl, of Birmingham; "Puerperal Eclampsia," by Edgar G. Givhan, of Montevallo; "Spinal Cocainization," by Dr. George H. Searcy, of Mt. Vernon; "Recording Cases in Private Practice," by William C. Williams, of Shelby.

Tennessee State Medical Association.—The seventy-second annual meeting was held in the Watkins Institute Building, Tuesday, Wednesday and Thursday, April 11, 12 and 13, 1905. The following papers were read: "President's Annual Address," by Dr. Paul F. Eve, of Nashville, special order for evening session of first day; "Food Adulterations in Tennessee, by Dr. Lucius Brown, A.B., A.M.; "Dystocia," by Dr. D. M. Hall, of Memphis; "Melancholia," by Dr. S. T. Rucker, of Memphis; "Psychic Phenomena, or Hipnotism as it should be in Medicine," by Dr. J. D. Hopper, of Jackson; "Diagnosis of Kidney Diseases," by Dr. Louis LeRoy, of Nashville; "Perinephritic Abscess," by Dr. W. A. Bryan, of Nashville; "Treatment of Hypertrophied Tonsils," by Dr. J. F. Hill, of Memphis; "Treatment of Hypertrophied Tonsils," by Dr. J. T. Herron, of Jackson; "Acute Middle Ear Inflammation," by Dr. N. C. Steele, of Chattanooga; "The Association of Serous Meningitis with Mastoid Inflammation," by Dr. E. C. Ellet, of Memphis; "Tuberculosis of the Skin," by Dr. J. M. King, of Nashville; "Keratosis Follicularis," by Dr. G. P. Edwards, of Nashville; "Gastro-Intestinal Diseases of Children in Summer," by Dr. Zeb. L. Shipley, of Cookeville; "Amyloid Degeneration: A Warning to the Physician; A Plea to the

Surgeon," by Dr. C. P. McNabb, of Knoxville; "The Clinical Significance of Ascites," by Dr. Raymond Wallace, of Chattanooga; "How Shall We Feed and Treat the Baby?" by Dr. Hermon Hawkins, of Jackson; "The More Serious and Unusual Complications of La Grippe or Influenza," by Dr. E. A. Cobleigh, of Chattanooga; "Biliary Concretions in the Common Duct," by Dr. W. D. Haggard, of Nashville; "Bone Surgery," by Dr. R. A. Barr, of Nashville; "Septicemia, with Report of a Most Interesting Case," by Dr. R. J. McFall, of Cumberland City; "Circumcision: Its Technic, Anesthesia, Operation, and After-Treatment," by Dr. E. A. Timmons, of Columbia; "Some Anomalous Cases of Appendicitis," by Dr. Jno. A. Gaines, of Nashville; "Appendicitis: Its Etiology and Pathology, with a Report of Laboratory Findings in Twelve Cases," by Dr. Walter Lenehan, of Nashville; "Amputations of the Thigh," by Dr. J. B. Murfree, of Murfreesboro; "Laryngeal Diphtheria," by Dr. O. H. Wilson, of Nashville; "Osteo-Myelitis," by Dr. Jere L. Crook, of Jackson; "Locomotor Ataxia," by Dr. G. P. Edwards, of Nashville; "Alcoholic Inebriety," by Dr. I. A. McSwan, of Paris; "The Importance of More Perfect Teaching of Physical Diagnosis in Our Medical Schools," by Dr. Hazle Padgett, of Columbia; "Treatment of Diffuse Peritonitis," by Dr. M. C. McGannon, of Nashville; "Unprofessional or Dishonorable Conduct," to which reference is made in Section 3 of the Medical Practice Act, by Dr. T. J. Happel, of Trenton.

CORRESPONDENCE.

ARMY TRANSPORT SERVICE.

To the Editor of the Medical News:

Dear Sir:—The last time I wrote you from a transport the letter was headed "On the Way to Port Tampa." I use the designation "Transport" for the miserable ship we were on, simply because that was the name given that particular boat and many others, equally unfitted for the carrying of troops by the then highly ornamental Secretary of War. The memory of Algers' fleet makes one most deeply appreciate the comfort and perfection (one might almost say) of "The Sheridan." In this letter I desire to set down, as plainly as may be for the delectation of your readers, what the Government is doing and has done for the better care of Army Officers and men at sea. It may serve to help them forget the Alger disgrace.

This ship may be taken as a type of the ships which Uncle Sam now has in his transport service. She is one of the Atlantic Transport Line and built originally with special strength and staunchness. She was later entirely refitted at the Fulton Iron Works, San Francisco, and, as I said, she stands to-day a model of what a troopship should be. To begin at the stern. Here we find a large, roomy hospital ward, capable of accommodating patients. A companion way in the very center leads to an isolation ward on the upper deck (the hospital itself being on the main deck) which is airy and flooded with sunshine; a better place for the treatment of contagious diseases could not be found on a ship. Aft of the hospital proper are the closets and bath tubs—excellently well placed since the foul odors are carried out the rear port holes by natural draughts caused by the forward motion of the ship.

There is, just off the main ward, an excellently equipped operating room and in immediate proximity are the dispensary, kitchen and the rooms of hospital corps men (nurses). The troopdeck is fitted with iron stands, three beds to each, for the accommodation of soldiers. Mattresses are not used; the ordinary wire spring being supplanted by canvass. This is removed at each port and thoroughly scrubbed and disinfected. Sixteen hundred to two thousand men can be comfortably cared for on this deck. The quarters occupied by the soldiers are marvels of cleanliness. I neglected to mention the system of ventilation with which the Sheridan is fitted. This extends to every part of the ship and the air of the troopdeck may not only be renewed at will but can be kept at any temperature desired; the temperature being taken every hour, night and day. Electrical fans are to be found in every stateroom and are placed wherever they may be desired, on every deck and in any nook and corner.

The soldiers eat on the main deck forward and the grub provided for them simply could not be improved. (What a contrast to the commissariat of those Heavenly Twins, Alger and Eagan.) The food in the cabin is delicious. I have never eaten as well on any Atlantic liner; not only that which is put before a passenger, but the way it is served—so appetizing; hot plates and all the rest of it and leaves nothing to be desired by the most fastidious. The Government buys only the best of stuff, and this is kept in the best condition in the cold storage plant which is maintained on the ship. Fresh bread is served daily and delicious are the rolls and cakes as well. There is fresh fruit in profusion; also part of the daily ration, so to speak.

As the best of everything is served to officers and passengers so is it to the enlisted man. Gentlemen who have seen the transports of the English, French, German, Russian and other armies tell me that there is nothing in any of them to compare to our American ships, which a thoughtful Government has prepared for the comfort and care of those officers and men who go forth to carry our flag to the uttermost ends of the earth.

And now comes the question which is causing much anxiety among those who have the good of the officers and men of the army at heart. Shall this magnificent service, established at so much labor and cost be done away with, at the behest, not to say the order of those men who control our railroads and who would get their unholy grip upon the sea-carrying of the Government as well?

It is devoutly to be wished that the Government will not give up this service. It goes without saying that J. J. Hill et id genus are not going into the transport business for their health and God knows not for the health of the officers and men of the American army. The change cannot be advised on the ground of economy, for the last report showed a very large saving to the Government in the last year from having run its own fleet of transports.

Another consideration—your business man would characterize this as "sentimentality." The one comfort which an officer has in his exile in the Philippines is in the fact that as matters are to-day he is enabled to have his wife and children with him. For a nominal sum the Government transports them to his station here and back to America in case of sickness or change in his orders. Now the powers of the trans-Pacific lines say this is really cruel injustice to them, taking all this trade and so making them poorer and in their "rarity of Christian charity," tell a listening Congress that they will take officers and their families for the moderate (*sic*) sum of $125 "per head." He who runs may read; the result would be that officers would have to get along as best they could without the love and companionship of those

nearest and dearest to them. Their very moderate salary could bear no such demand.

These unselfish and eminently altruistic capitalists say, "The Government should not be in the sea-carrying trade; they are hurting the American merchant marine which we and other apostles of purity and light are endeavoring to build up." One is tempted to irreverently remark, Bunkum. I am reminded of the answer found in a civil service paper:

Question. What is the purpose of Life Insurance?

Answer. It is to provide ample funds for those who are born in a state of impecuniosity.

This exactly fits this particular case. The purpose, the end of our Government, for in the opinion of these capitalists, is not to provide properly and generously for those officers and men who are daily giving up all they hold dear and their very lives that our nation may live, but to furnish more and more pabulum for them, who with all their riches consider themselves poor and to whose overwhelming greed there is no limit.

Another pertinent objection to turning the soldiers over to the tender mercies of the mercantile lines; our Government has found that both officers and men who have been stationed for any length of time in these islands are particularly liable to develop pneumonia, if subjected to the low temperatures which a ship encounters, returning by the great circle or northern route; indeed, as I understand it, 'twas this fact which led the returning ships to take the more southern course via Honolulu.

Again, the best of discipline can be and is preserved on the Government boats and the soldiers are exercised and drilled daily; there is no objection on the part of passengers to this, for whether they be army folk or not, it is perfectly well understood that these ships are first and foremost for the army, its comfort and improvement. Such practices could not be maintained on board a passenger boat. People who pay a high passenger tariff simply would not put up with them and one or the other would have to go. Drinking is kept at its minimum on the Government transports. They rank as Government reservations and no Canteen is allowed, and so long as there is no such sensible control as a Canteen gives, the officers are wise in keeping whisky away from the men as much as possible.

Finally, it is to be most sincerely hoped that the influence of the President and those who have the good of the army at heart will successfully resist any attempt to do away with the Army Transport Service, as it is now organized.

Frank Donaldson, B.A., M.D.

U. S. Transport Sheridan, Manila, March 1, 1905.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Section on Medicine.

Regular Monthly Meeting, held December 20, 1904.

The President, Charles H. Lewis, M.D., in the Chair.

Pneumothorax.—Dr. Mannheimer presented a patient suffering from pneumothorax. The patient was thirty-seven years of age, and suffered from the affection for some four months without any effusion of liquid into the pleural cavity. His mother had died of tuberculosis at the age of forty-two, and the man himself had suffered with symptoms of the same disease. He had been ailing since August when, after a few weeks of cough and malaise, there was a sudden onset of difficulty of breathing, with great oppression and pain in the chest. Not long after the signs of pneumothorax were recognized by the attending physicians, the right side of the chest was slightly enlarged to inspection and mensuration. There was very loud resonance reaching to the eight and ninth ribs. The diseased side does not stand still, but moves less than the other side, in respiration. The patient can lie on his left side, showing that his other lung is capable of doing considerable work. On percussion there is no change of note on opening or closing the mouth. The breathing is distant and amphoric over the entire side except in the interscapular region, and in the fourth interspace in front, where there is probably an adhesion. A distinct coin sound can be heard. Tactile fremitus is greatly diminished. The left lung is somewhat emphysematous. The heart is slightly displaced to the left and the liver is markedly displaced downward. This condition has continued to remain stationary for six weeks now, and it is a question whether aspiration of the air for the relief of the patient should not be attempted.

Acromegaly.—Dr. Mannheimer also presented a case of acromegaly in the person of the wife of the preceding patient. This patient is about forty years of age, and has suffered from the affection for the last three years. There has been distinctly progressive enlargement of the face, hands and feet, until now the picture of acromegaly is a very characteristic one. There are the prominent cheek bones, the prominent chin, the lower teeth protruding, the thick lips and thick nose, with the spade-like hands and the clumsy feet, and the large toe being particularly broad and the skin around the heel being much thickened.

Pachyacria.—The enlargement in this case is much more in width than in length, and justifies the term suggested by Recklinghausen some years ago because of this characteristic feature. The heart is somewhat enlarged, and the apex beat is heaving and found to the left of the nipple. The first sound of the heart is booming, and the second a pulmonary sound is distinctly accentuated. There is an acceleration of the pulse, which is also of rather high tension. A slight amount of albuminuria has been noticed, but this is not constantly present. The abdomen is quite pendulous. There is a distinct separation of the recti muscles, in fact, a typical diastasia. Menstruation ceases early in most cases of acromegaly, but is profuse in this case, occurring every three weeks and being much more abundant than normal. This is due to the fact that there are fibroid tumors present in the uterus causing the menorrhagia. This is atrophic rhinitis. The patient says that her voice has become coarser and deeper during the progress of the disease, and this observation is confirmed by her husband. The fungus and feels of vision are normal. There is slight myopia. The patient complains of weakness and pain in the left side and of headache, though not to the severe extent so often seen. No hereditary can be traced in the case, either direct or indirect. There is one child, aged six years, which looks perfectly normal and has always been healthy.

The Blind and Massage.—Dr. M. B. Potter then read a paper on the employment of the blind to give massage. He said that his attention had been called to the subject, particularly, by hearing that for several centuries the Japanese had employed blind persons to give massage and with great success. The result of this system is that massage is

very well done at a comparatively cheap rate in Japan, and, as a consequence, even the poor have the opportunity to take advantage of its curative effects. The government protects the blind in their avocation from being imposed on, and thus a class of people that otherwise would be a charge on the community becomes a very useful and self-supporting element. It is easy to understand that a blind masseur or masseuse would be more acceptable for people of delicate sensibilities than a seeing one. As a rule, the blind themselves enjoy better health as the result of the exercise they obtain, and as a consequence of the interest in life aroused by a constant money-making occupation.

Massage in Europe.—The only place in Europe in which massage is extensively carried out by the blind is in St. Petersburg. The first teacher of it was a medical student, who became blind just before graduating. There the experience is that the blind learn rapidly, especially if the pupils are selected with the definite idea of taking only those who show special talent. It is considered that two years are needed for the proper study of anatomy and physiology in connection with massage. After graduation the students are able to find a reasonable amount of work and make a successful living. In Sweden, the home of massage, an attempt to teach the blind failed. The reason for this was said to be the absence of books with raised letters, out of which principles of anatomy and physiology might be learned. In France the blind have been used, but not extensively, yet with some success. In Brussels there is a free school for the teaching of the practice of massage for the blind. In Denmark a ten-months' course is considered sufficient to prepare the blind for massage, and a reasonable amount of success has been met with in the teaching. At Brünn, in Austria, there is a successful school for the teaching of massage to the blind. The only place in Germany where a special effort has been made in this direction is at Leipsig, and here a certain amount of success has been obtained.

Faculties Necessary for the Work.—If the blind are to successfully pursue the avocation of massage, care must be taken in selecting proper individuals for training. They should have strong hands and soft fingers, and, as a rule, should be such persons as readily learn to use their hands for almost anything—that is, they should be what are called handy persons. In Germany and in Denmark and in Russia it has been noted over and over again that the blind themselves seem to improve in health as the result of the exercise and the occupation of mind consequent upon this employment. Great Britain has more recently succeeded admirably in establishing an institute for the teaching of massage to the blind. Women seem to do even better than men in becoming self-supporting after graduation. In looking up the records of graduates of massage institutions, not a few of them are found to have engaged in some other employment.

Preliminary Education.—It is important that candidates should be selected with due reference to their preliminary education. The more they know, the better are they likely to get along in this employment. Only such blind should be taken for training as are especially neat in their habits. This is a rather difficult matter, because many of the blind are slovenly. As a rule, they should have good health and a good appearance. Their teeth should be carefully looked to, for if they have an offensive breath, they will find it difficult to secure constant employment. Pupils should be between twenty and forty years, for at later years they do not learn well and do not secure the necessary dexterity.

Massage for the Blind in America.—In Boston something has been accomplished in opening up this new avenue for the blind. In Philadelphia excellent work has been done in connection with the Pennsylvania Institution for the Blind at Overbrook. About a dozen graduates are making a good living out of the profession of masseur. It seems too bad that more is not done in this matter, for in Japan it has been made a decided success. In this country very few of the blind are self-supporting. A certain allowance is made to all blind persons by many of the States in certain cities. If this occupation could be opened up to them, a great benefit would be conferred on them, and, at the same time, massage would be made available for many more patients than at present.

Need for Masseurs.—The chairman of the section, Dr. Lewis, in discussing Dr. Potter's paper, said that at the present time it not infrequently happens that patients who need massage do not have it because of the expense attached to it. Many patients, for example, convalescent from typhoid fever, would reacquire their muscular energy much sooner if given massage. Few use it, however, because of the expense attached to it, in considering the large bill for medical attendance that is likely to accumulate. For many other conditions in which there is relaxation of muscular tissue, as after intestinal toxemias, massage would add to the speed of recovery. In such conditions as pseudoparesis and in the various forms of hysterical paralysis massage would often be of the very greatest service. Always it is the expense attached to it that constitutes the main objection against its employment.

Electricity and Inflammatory Exudates.—Dr. Margaret A. Cleaves discussed the continuous current in relation to inflammatory exudates. She said that as the human body contains in its tissues six-tenths of 1 per cent. of common salt, it may be considered to be a good conductor of electricity and consequently definite chemical effects must be expected from the use of the continuous current. Undoubtedly there are electrolytic effects, though little electrolytic gathers at the poles. The electrolysis would seem to be of a destructive nature. This is what is especially noted in certain low-grade new growths and in inflammatory exudates. Undoubtedly the disappearance of fibroids can in many cases be brought about by the use of the continuous current. What happens is that the fluids and salts are removed from the morbid growth, and, as a consequence of the contraction thus secured, less blood is brought to the region and as a consequence a further diminution in size until actual disappearance may result.

Gynecology.—It is in gynecology especially that the use of the continuous current has proved of service. When the pelvis has become roofed in by exudate, the use of the current may produce a diminution of circulation in this material, and so bring about relief of symptoms due to traction and compression. It is in exudative inflammations that the continuous current has given especially good satisfaction. Its benefits, however, are not confined to the genital tract, but have been seen in the nose

and throat and in the intestinal tract. Hepatic congestion of inflammatory origin are also relieved, and in general whenever there is a low-grade inflammation, if the continuous current can be made to act directly upon an organ, then good will result. Where fully formed connective tissue bands have come into existence, then the electric current will not prove beneficial; but for masses of exudate surrounding articular surfaces or clogging tendon sheaths so as to prevent movement, the results obtained are preeminently satisfactory.

Phlebitis.—Dr. Cleaves has found the continuous current of excellent service in bringing about the reabsorption of such exudative masses as cause phlebitis after so many different forms of infection. She has had cases under treatment in which the phlebitis occurred as the result of vaccination, of typhoid fever, of uterine curettement, and all of them have been improved, though for many months beforehand all remedies have been tried without success. In cases where massage and passive movements had failed, in postseptic conditions, in joints, continuous current did not fail to give relief and produce a state of affairs within the joints which allowed much freer movement than before.

Electricity and Nutrition.—Dr. Rockwell said that the influence of electricity depends upon nutritive processes as well as its mechanical effects. The galvanic current especially, because of its chemical effects, may encourage absorption that would otherwise be either very slow or perhaps not take place at all. Any one who has seen the continuous current faithfully and properly applied in pelvic disease can scarcely fail to realize how much may be accomplished by this means. The physical effects of electricity, and especially the modification of what we now know to be the important processes of endosmosis and exosmosis, are undoubtedly responsible for some of these effects. Unfortunately there is a tendency to neglect the good that may be thus obtained, or to use electrical treatment with so little consideration that it is sure to prove ineffectual.

Chylous Ascites.—Dr. J. Finley Bell, of Englewood, N. J., presented the fluid from a case of chylous ascites. The patient was a German, fifty-seven years of age, who came under treatment suffering from severe dyspnea and from ascites involving not only the peritoneal cavity, but also the scrotum. There was rather deep pigmentation of the cutaneous surface and considerable cyanosis of the tips. He suffered from these attacks some few months ago and his case was called malaria. It seemed to be benefited somewhat by the use of Warburg's tincture. Three years ago he was examined for life insurance and pronounced perfectly healthy. Eight months ago, as the result of an accident, he suffered from a broken rib, but there seems to be no sign of this accident left. When he first began to suffer from accumulation of fluid in the abdomen, he was treated for obesity by a homeopath.

Present Condition.—He has never suffered severely from constipation and does not now, but the intra-abdominal pressure has increased so much that his diaphragmatic breathing is almost abolished. Besides, some crepitant râles are to be heard at the base of the lungs and he has developed stubbed fingers, which have come on quite recently. The circumference of his abdomen at the umbilicus is 118 centimeters. As there were no parasites to be found in his blood, the diagnosis made was hepatic cirrhosis, with consequent ascites. Accordingly he was tapped for this condition, when, to his physician's surprise, the fluid obtained was of milky hue and consistency. It is slightly pinkish in color and does not coagulate on standing. Four thousand c.c.'s were removed at this time, and though it was easy to demonstrate that more fluid was present, no more could be tempted to come out. The emptying of the abdomen had very little effect upon the scrotum, and this accordingly was tapped the next day and proved to contain only clear serum. This is evidently due to the mechanical interference with the circulation by the intra-abdominal pressure. Every ten days since the tapping has had to be repeated.

Possible Etiology.—The fluid obtained is always of the same chylous nature, so that there is evidently some obstruction in the chylous system. The man has not been outside of the United States for many years and no parasites have been found in his blood. An area of dulness, however, is demonstrable in the upper part of the thorax on the left side, and it seems clear that there is some sort of intrathoracic growth—whether of inflammatory or neoplastic nature is not clear—pressing upon the thoracic duct not far from its entrance into the veins. Whether this has had anything to do with the broken rib seems extremely doubtful. Absolutely no deformity can be found where the rib is said to have been broken, and there are no tender spots any place over the thorax. The temptation is to believe that there is a thoracic new growth, which is interfering more and more with the function of the duct. In that case the prognosis is not at all favorable, since such cases are likely to be of malignant nature; and then, besides, interference with the flow of the chyle is of itself likely to cause such serious interference of nutrition as will eventually lead to fatal issue.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held December 9, 1904.

The President, Samuel Wolfe, M.D., in the Chair.

Case of Pancreatic Cyst.—The paper was read by Dr. M. J. Karpeles, who reviewed in detail the literature of the subject, particularly the writings of Dickhoff, Filger, Lazarus, Körte, Moynihan, Hemmeter and Senn. The case reported was a male, sixty-eight years of age, with a negative family history, without specific history and temperate in the use of alcohol and tobacco. He first complained of discomfiture in the left side, insisting that his side had been sprained, the principal symptoms being marked nausea with occasional vomiting of a dark green, thin, watery fluid, without perceptible odor and in an amount out of proportion to that ingested; general pruritus, especially of the hands, dyspnea upon least exertion, profound weakness, epistaxis, colicky pains, frequent attacks of diarrhea and insomnia. The stools were submitted to a careful analysis and were found to be free from fat, the urine showed a low specific gravity, a trace of albumin and the presence of bile. Upon physical examination a tender area was elicited at the costal margin in the left mammary line. Ten days later it was possible to outline in this region a "mass" the size of an egg, which, at the time of the patient's death, about three weeks later, involved the left half of the epigastrium, the left hypochondrium,

the umbilical and the left lumbar regions. As this fluctuating mass, which was diagnosed a pancreatic cyst, enlarged, the gastro-intestinal symptoms proved more rebellious, the jaundice became more marked, the insomnia required hypnotics and the general discomfiture increased. In view of the marked prostration and jaundice operation was not deemed advisable. At autopsy a large pancreatic cyst was found, containing about two liters of a grayish colored fluid with little consistency and no blood. The cyst wall was thin and the inner lining smooth. It was impossible to determine the part of the gland in which the cyst originated.

Dr. David Riesman stated that he had never seen a case of this condition on the autopsy table and this was the first case he had seen recognized during life. In the differential diagnosis he felt that (1) cystic gall-bladder; (2) hydronephrosis; (3) echinococcic cyst; (4) and in women ovarian cyst should be considered. He stated that jaundice is not as prominent in cases of cystic gall-bladder but may be present. In hydronephrosis with renal crises and long history of pain, floating kidney should be taken into consideration; ovarian cyst should be differentiated by vaginal examination and echinococcic cyst by the patient's habits. He stated that in the above case reported exhaustion and epistaxis rendered operation inadvisable, although he felt possibly tapping of the sac, after sewing or stitching it to the abdominal wall might have been of value, if the epistaxis had not been so great. In the treatment of pancreatic cysts the surgical treatment was the one that should be employed. In regard to diagnosis he stated that where the tumor occurs in the epigastrium extending into the left hypochondrium and is accompanied by pains in the celiac plexus, these symptoms are sufficient to warrant a provisional diagnosis of pancreatic cyst. The danger of fat necrosis occurring by reason of the fluid getting into the abdominal cavity he felt to be quite small, and also believed that cases had occurred in which the tumor had evacuated itself into the intestinal canal.

The Etiology and Diagnosis of Cholelithiasis.—This paper was read by Dr. William Rnoff, in which he stated that no common etiological factor could be assigned to all cases. Age he considered an important factor, the majority of cases occurring between the ages of forty and sixty years; and the more frequent occurrences in females he laid to the mode of dress and pregnancy. The influence of age he felt might be manifested through the loss of contractile power of the bladder, thus favoring retention and the lack of resisting power of the body fluids. He felt that too much importance was attached to temperament, gluttony, excessive indulgence in meats and fats, heredity and climate. He discussed in detail the different varieties: (1) Pure cholesterin stone; (2) laminated cholesterin stone; (3) ordinary gall-stones; (4) mixed bilirubin calcium stones; (5) the rarer forms, such as (*a*) amorphous stones, resembling pearls; (*b*) chalk stones; (*c*) concretions surrounding foreign bodies; (*d*) casts of bile ducts. He then considered in detail the infective causes through the medium of the portal circulation and through an ascending infection from the common duct, and the influence of appendicitis, salpingitis, peritonitis, etc. The diagnosis was considered under three heads: (1) Cases in which no symptoms have been produced and which are usually discovered at autopsy table; (2) transitory symptoms of dyspepsia and abdominal and liver symptoms; (3) those cases causing severe, and at times almost fatal illness, which are most frequently met with. The symptoms of jaundice, vomiting, hepatic and cystic infection were considered, as was also the symptoms of impaction.

Gall-Stone Disease—Remote Effects and Treatment.—This paper was read by Dr. Samuel P. Gerhard, who reviewed the literature on the subject and stated that efforts should be mainly surgical. He stated that gall-stones, so long as they remained in the bladder, were perfectly harmless, but that the danger was due to the liability of accidents in their passage through the common duct, considering under this head, the infectious conditions, such as cholecystitis, with its train of fatal effects, as empyema and gangrene; pancreatitis, caused by pressure upon the head of this organ, fistula into a neighboring organ, peritonitis, etc. He stated that while a few years ago the condition was almost entirely within the domain of internal medicine, it was now almost equally monopolized by surgery, which he attributed to the advance in the results obtained by this method. The medical treatment, he believed, should be prophylactic, directed to preventing the formation rather than curing the disease. He referred to the cases of biliary colic, which, if recurrent, should call for careful consideration of the cause thereof and advisability of operation. Particularly should those cases be watched which have no jaundice, the symptoms are vague, and there is only slight recurring pains over the region of the gall-bladder, owing to their liability to run on to suppuration and deceive the attendant.

Dr. David Riesman, in the discussion, referred to the rarity of this condition in the colored race, and stated that, although he had had considerable experience in autopsy work, he had never seen a single instance. He stated that the youngest patient he had ever seen was eleven years, and the oldest seventy years, and referred to the comparative frequency of the condition in the male and in the female. He stated that the essential features in the diagnosis were, pain in the region of the gall-bladder, below the costal cartilage in the right peristernal line, although the location of the pain was not absolutely necessary. He referred to the case of a man, thirty-seven years of age, who had suffered from cramp-like pains in the abdomen for a number of months, chiefly in the epigastric and left hypochondriac regions, and unassociated with vomiting. He had been treated in various ways and had lost 20 pounds in weight. At operation, gall-stones were found in the cystic duct; there was no jaundice and no tenderness in the gall-bladder region. He also referred to several other cases in which the characteristic symptoms were not present. He stated in his experience the X-ray had not been of value in the diagnosis of these cases, and referred to the method of Dr. DaCosta of placing a cylindrical pad under the patient, so that the patient forms an inclined plane with the table, and then by gently rubbing with the hand, an enlarged gall-bladder may be felt. Referring to the pathogenesis, he stated that, without infection, the passage of the stone would cause inflammation of the gall-bladder and ducts, and believed that many of the cases which were called biliousness were really due to gall-stone attacks. He referred to the occurrence of the condition after infectious diseases, and reported a case diagnosed as duodenal ulcer, which on operation proved to be an infected gall-bladder.

e persistence of jaundice should suggest stone malignant disease. In regard to treatment, he ted he had tried the sodium salts and also the icylates, and that in some cases the attacks had en prolonged, but did not cease entirely, and he pressed the belief that the surgical treatment uld assume the same place it had in appendicitis.

Dr. John B. Deaver also stated that he had never n nor operated upon a case of gall-stones in a ored subject. He divided the condition into two sses: Cholelithiasis of the gall-bladder and af- tions of the common duct. The pain and tender- s in the epigastrium are less frequent in disease the common duct than in the gall-bladder in- mmation. He believed that the pain in the ma- ity of instances is inflammatory, and due to in- tion. He felt that the question of jaundice was y misleading as a diagnostic factor, and stated t personally he never operated on acute cases, t if the attacks continue, and the symptoms and ndice persist, then the value of operation must considered. He did not consider the X-ray of ch value in diagnosis. He referred to the im- rtance of the physicians thoroughly understand- palpating, which method, if properly applied, he ieved, would enable them to differentiate between l-bladder disease and appendicitis, floating kid- , etc. After reviewing the history of several es, he took up the subject of gall-bladder sur- y, dealing particularly with the technic. He did t recommend operation in cases of acute common ct obstruction. In patients on which the opera- n is performed, it should be done early. He did t approve of the performance of such operations private houses, and emphasized the value of care- preparation of the patient prior thereto, includ- careful urinalysis, but did not believe that stom- analyses are much value except in cases of acute cocytosis. He favored drainage of the gall- dder more than its removal, unless there was some lication for the latter procedure.

Dr. Wilmer Krusen referred to the case of a man thirty-two years of age, who had suffered ht years with gall-bladder disease, but had been amined by four physicians, without the true con- ion being suspected, and the X-ray failed to re- l the seat of the trouble. At the operation for removal of a cystic ovary, 43 stones were re- ved from the gall-bladder and the woman made good recovery. Another case was reported, in ich an operation was done by another surgeon appendicitis, and the appendix found not to be eased, and the wound was closed up. Two days er he was called in to see the patient, who had a lse of 140 and a temperature of 103° to 104° F. marked enlargement over the gall-bladder was nd. Operation showed empyema of the gall- dder, and 420 stones were removed therefrom, t the patient died within twenty-four hours from neral peritonitis. He expressed the belief that l-bladder disease was as much a surgical pro- lure as appendicitis, and that the sooner the op- tions were done the better for the patient.

Brain Collection.—Ten leading American anato- sts have been appointed as an advisory board to Wistar Institute of Anatomy of the University of nnsylvania, and they have appointed a committee five to cooperate with the committee on brain in- tigation of the international academies.

NEW YORK ACADEMY OF MEDICINE.

ORTHOPEDIC SECTION.

Regular Meeting, held January 20, 1905.

The President, Homer Gibney, M.D., in the Chair.

Fracture of Right and Left Femur.—Dr. Homer Gibney presented this case from his service at the Hospital for Ruptured and Crippled, with X-ray. Girl, aged five years, admitted to hospital January 11, 1905. The diagnosis was fracture of right femur and old fracture of left femur. Left femur fractured two years ago. Found not to have united. Had no pain. Four days before entrance fell and had fracture of right thigh. Had no pain at entrance. The physical examination showed fracture of right thigh, anterior bowing at middle and upper thirds. Linear scar four inches long over outer side of same thigh. Also marked anterior and lateral curvature of left thigh at same level; bone, however, is very firm.

Treatment.—January 17, 1905, right leg by use of traction and local force straightened and bones got in good apposition, and put up in plaster spica, as at present. Subcutaneous osteotomy was done on the posterior half of the left femur at site of old fracture. The bone was then broken backward and plastic spica applied to that side.

Double Coxa Vara.—Dr. Gibney also presented a case of double coxa vara admitted by Dr. Whitman and operated on by him. Girl, four years old. The progressive scissors deformity was not present; the waddle peculiar to congenital dislocation was present in this case, but the tibial curve had been corrected. Physical examination on admission showed marked evidence of rickets, waddling gait and lordosis, as in double congenital hip. Trochanters above Nelaton's line both sides. Right and left legs same on measurement. Soon after admission Dr. Whitman did osteoclasis (manual) at the middle of both tibiæ; union firm; put up in plaster-of-Paris in overcorrected position. Firm union; deformity corrected, and the child was measured for braces which she now wears.

The Chairman said that the interesting feature of this case is that the X-ray shows the right angle deformity of both femoral necks to be a rather unusual bilateral coxa vara.

Dr. Whitman said that now that the bow legs had been corrected he should proceed to treat the coxa vara with the idea of replacing the neck of each femur in the normal position, for, in his opinion, the deformity might later on become progressive. The character of the operation he had described on several occasions, namely, a cuniform osteotomy at the base of the trochanter, of sufficient size to permit full abduction of the limb.

Osteitis Deformans.—Dr. Whitman presented an X-ray picture showing thickening, softening and slight deformity of the right femur. This illustrated so-called local osteitis deformans. The patient, a man fifty-eight years of age, had noticed slight discomfort about the thigh for twenty years. For three years this had become more troublesome. There was a slight limp, slight outward and forward bowing of the middle of the femur and one inch of shortening. No treatment other than the avoidance of overstrain seemed to be indicated.

Epiphysitis.—Dr. C. N. Dowd presented a boy who had had epiphysitis of the upper end of the humerus, which healed after operation two years ago. The abscess which had followed the epiphysitis had pointed just back of the deltoid insertion. The joint had not been involved. About half the head of the

humerus was removed without touching the articular surfaces. Healing was complete in about two and a half months. The speaker particularly called attention to the condition of the shoulder-joint, which was normal; also to the growth of the bone, which also was normal. A second patient, of a similar kind, which was announced on the card, but which had not come to the meeting on account of whooping-cough, showed also a normal joint and normal bone growth, although the interior of the head of the bone had been completely removed, leaving simply a thin hard shell. He asked the experience of the members of the Section on the effect of epiphysitis on the growth of the bone. He had seen a number of cases in which only a small shell of bone was left and in which the subsequent growth had been normal.

Dr. Dowd also presented a case of epiphysitis of the lower end of the tibia with an X-ray picture which showed a cavity in the bone leading upward from the epiphysis about an inch to the bone surface. The bone below the epiphysial line was cloudy and showed a lack of detail in the picture, but there was no evidence of involvement of the ankle-joint itself. The motion in the ankle-joint was free and not painful. The wound was practically healed. The outer shell of bone above the epiphysial line having been removed for about two inches healing had taken place in five weeks. The speaker also presented a case of fracture of the external condyle of the humerus, admitted in September, having the ordinary appearance of such a fracture. The arm was put up in plaster in flexion: was inspected in two weeks and put in plaster again for two weeks more. He was unable to gain extension after healing had taken place. He was seen again about December 1 and the fragment could be distinctly felt; very slightly movable, the arm was still flexed at about 90 degrees. This fragment was removed by Dr. Mathews and was found to consist of a part of the external condyle and about half the capitellum. It had rotated about 90 degrees. Motion was good after this removal. The arm was again immobilized in flexion for three and a half weeks. Motion was now nearly normal. He has been carrying a light weight on his wrist, and extension has rapidly increased in that way. He referred to a similar case which had previously been treated in the hospital, and to several which were reported by Kocher and others. Dr. Dowd said that he had been interested in this case on more than one account, particularly from having read in one of the most recently and widely circulated systems of surgery the following statement concerning fracture of the external condyle. "The prognosis is unfavorable as the fracture lies partly within the joint and callus production and adhesion may cause permanent impairment of motion; for this reason it is important to begin passive motion as soon as possible,—that is, at the end of the second week." He believed that the best way to prevent callus formation was to immobilize the arm until the fragments were firmly united, and quoted his own experience of about 50 cases with only one in which good extension did not result. On the other hand, the surgeons who advocated early passive motion were the same ones who were also removing the fragments of bone frequently because their results were so poor. He felt that it would be advisable for the Orthopedic Section to express an opinion as to the desirability of immobilizing such joints in order to prevent callus formation and thus gain a good result.

Talipes Equinovalgus.—Dr. Dowd also presented a case of paralytic talipes equinovalgus, treated by the method which Dr. Whitman advised. The tendon of the extensor hallucis was divided near its insert carried through a hole in the scaphoid bone, the being then brought up and sewed to the upper of the tendon, making a firm fastening to the ce and to the side of the bone. Synarthrodesis of astragaloscaphoid joint was also done. A small ment of the tendon of the extensor hallucis, which separated from the rest, was left in this patient. foot had been kept in plaster for three months. He now walking with a brace, which limited the pla flexion of the ankle-joint and prevented eversion the foot, and walked very well.

Fracture of the Middle of the Femur.—Suc case was also presented by Dr. Dowd with practic a perfect result. The X-ray picture showed an obl fracture, with good apposition. A similar picture, ta after a healing, showed the position was maintai and there was a slight callus about the fracture. case had been treated with Buck's extension for weeks, then kept in plaster for five weeks. He that he had noticed that four weeks had been sugge as a time in which bony union is firm in a child a fracture of the femur, but it did not seem to him to permit use of such a femur under seven or e weeks.

Dr. Whitman said that accurate apposition and would assure union with the least callus formation illustrated by the X-ray picture of the fractured fe presented by Dr. Dowd. He had supposed that e passive motion in cases of fracture involving a j had been employed rather to push away bone or ca that might prevent motion than with the aim of sening its formation. Massage, after union was sured, had of course a very different object. Dr. W man said, regarding Dr. Dowd's case of tendon tr plantation, that it was difficult to assure firm anchyl in children so that in doing this operation he se the astragalus and scaphoid with strong silk and fi the foot invarus and slight dorsal flexion (over rection). As soon as possible the patient was enc aged to walk about and the longer the attitude was tained, the better, in order that varus should be pressed on the foot by accommodative changes. Dr. Dowd's case there was slight flatfoot which m be corrected by a foot plate.

Dr. Whitman said that in correcting deformities the elbow following fracture, the attitude of comp extension was of advantage. This was best assu by a plaster bandage which included the thorax as as the arm. Complete extension was an awkward titude for ambulatory treatment, but was not unc fortable if the patient remained in bed, as was us after the open operation to which he especially refer

Dr. Myers said he thought the amount of shorte would depend upon how much of the epiphysis had destroyed by operation or disease; the amount of mo on whether the joint was involved or not, though rule was not absolute. These cases are quite freq in tuberculous children following strains and the sults usually much better than in the hip. The spe remembered two cases about twelve years old now, it would be impossible to say anything had occu at that joint, whereas, in another the limb had shortened at least three inches in its developm This case had undergone two scraping operation that region, and probably most of the epiphysis been destroyed.

Dr. Sayre said that in his experience if the dis has been so extensive as to either obliterate the epi sis of itself or to cause it to be removed by sur intervention there has been very material redu

in the growth of that limb. It does not at all times follow when the disease is situated in the neighborhood of the epiphysis that by removal of the diseased tissue the epiphysis is sacrificed. In those cases he thought we still had sometimes, the same rate of growth in the leg. He had operated on an ankle in a boy a little older than the one presented this evening, scooping out the lower end of his tibia to remove a tuberculous focus. At the present time the patient is a medical student, with legs of absolutely normal length. About five years ago the speaker had scooped out the head of the humerus in a girl twelve years of age. The last time he had seen the case there had been no appreciable diminution in the length of that humerus. In a good many other cases seen there had been very marked diminution in the growth of the bone after such operations. In some cases of hip disease one sees a very marked atrophy of the femur, very marked shortening, although the case has been rather a mild one and the acetabulum and the tip of the femur have been very little involved, but the epiphysis evidently very much demoralized both from appearance as shown in X-ray and diminution in growth of the leg. A very much shortened femur on that side was sometimes accompanied by very excellent functional result.

Dr. Sayre said Dr. Dowd showed that case of elbow, as he understood, to get the opinion of the Section as to the result of movement of fragments soon after fracture in regard to the production of callus. It seemed that the irritation of the two extremities of broken bone was one of the surest ways of producing callus. Judging from practical results he had seen, there was much freer motion in fractures of the joint, when left severely alone after fracture, placing fragments in as nearly normal position as possible, keeping them quiet to get good union, rather than taking them down at the end of a fortnight to move them. It has been fashionable in recent years to take fractures down very soon after the injury, in a fortnight, we will say, and begin to move them, and that was the plan a number of years ago. Then it became less fashionable in this country and the doctrine of rest after replacement was preached very forcibly by a great many gentlemen. Abroad they recently have become enamored of the idea of manipulating the fragments and moving the joint very soon after fracture with the idea of preventing anchylosis. The reason for moving these fragments in the neighborhood of the joint as given by those practising in this country was not to prevent the formation of extra callus in the joint, but to keep the joint itself limber so it would move, and the ligaments would not set up fibrous anchylosis. The idea of motion of the broken part diminishing the formation of callus was new to the speaker and he was surprised at Dr. Dowd having said that Von Bergmann gave that as the ground work of his treatment.

Dr. Fiske said he did not know of any more difficult fracture to treat than that of the external condyle of the humerus. In those cases involving joint surfaces there is generally a good deal of displacement, for that reason we have poor results due to the amount of callus which is large because it is almost impossible in some cases, to effect perfect apposition of the fragments. It seemed to the speaker that any such fracture with fragments displaced should be reduced while the patient is under an anesthetic. He said he made it a rule in attempting to effect reduction. In many cases, it is impossible in spite of the greatest care in manipulating, to effect exact reduction. In most cases he placed the arm in the right angle position. In two weeks, when changing the dressing, he attempted to drop the arm 20 or 30 degrees. He thought this meth eventually gave a better result than when the arm w kept in one position four or five weeks. He said was not in favor of early massage, but thought the jo should have twenty-eight days of absolute fixation.

Dr. Fiske said that several cases had been trea with the arm in extension with fair result. He p sented a man who, about eight days ago, attempted perform an athletic feat by which the Achillis ten on the left side was put under great strain. A phy cian called in to look at the case decided that noth very much was the matter. Dr. Fiske, after a f days, saw the man for the first time, and discove that he had practically complete rupture of the up portion of the Achillis tendon, but had good functi It was an unique case. He had attempted to jump against a wall and placed his foot against the w The shoe he had may have caused pressure, cutt him.

Dr. Whitman said this case brought up a joint favor of subcutaneous tenotomy in that it demonstra how one may divide a tendon and leave the sheath preserve continuity. He said he would fix the f in slight equinus until the tendon had united, the c muscle would meanwhile accomodate itself to the elo ated tendon. The man, in his opinion, should walk without support, for fear of breaking the sheath

Dr. Sayre said a number of years ago this quest of immobolization of the tendon after tenotomy oc pied a great part of orthopedic literature. Mr. Ada wrote a long work on the subject of tenotomy wh received a prize, in which he proved successfully, thought, that it was necessary to immediately appro mate the fragments after a tenotomy, in order to union. In the appendix he spoke of Mr. Rolfe Cox veterinary surgeon, who operated on race horses w had equinus. He cut the flexor perforans tendon, off the overgrown part of the hoof and allowed horse to stand on his foot and run about the field once. He soon recovered with a good tendon, winn a race the next year. This showed that the approxi tion of fragments as argued in the first part of book, was not necessary in quadrupeds. It is necessary, either, in bipeds. If one divided a ten and covered the gap between the ends with a f dressing and thus left a space to be filled in with blo it would afterward organize in a good piece of tend After eighteen days, in rabbits, it is difficult to see w the naked eye that there has been a break. In th months one cannot detect the union under a mic scope. On the contrary, if one put a tight band around the part with a protecting roof over the g and keep it there, the space would be occluded so opportunity was allowed for effusion into the gap, cases thus treated might result in non-union.

Dr. Ogilvy cited a case in which a heavy woman allowed to walk in seven days after the snapping the tendon. She could not raise herself on her to and the tendon was not half so strong as before r ture. The result, he thought, was due to the fact t she had been allowed to walk too soon.

Dr. H. W. Frauenthal showed a girl, aged ten, whom both hip-joints were anchylosed at right an He asked for suggestions. Her trouble started in right hip at three years of age. Had had all kinds treatment. For the past three years no treatment at It was a case of neglect, sent to the speaker to see anything could be done for her.

Dr. Charles Ogilvy presented a case of congen dislocation of the hip operated on in October, 1901, Dr. Phelps, open method. The patient was admit

weeks before operation, during which time between and eight pounds' weight was put on the leg. The ffa open operation was done except that the Duyon avator was used. The neck of the bone had an an- or twist. The head set more perfectly in the tabulum by having the leg rotated inward and the leg put up in plaster, remaining three months, after ch time a Phelp's hip splint was applied. This kept on for six months, making nine months of tion altogether, after operation, after which time child was allowed to walk without further ap- atus. The result is perfect. Dr. Ogilvy showed ther case operated on by Dr. Phelps, open method, December, 1901. For six weeks a plaster-of-Paris a was applied; after that the plaster was removed a hip brace was applied as in the other case. The e was kept on for six months. In July the brace removed. On December 12, 1902, Dr. Lorenz rated on the other side. At the time of the opera- he mentioned the fact of the acetabulum being ticularly shallow, and said it was wiser to keep on plaster-of-Paris as long as possible, even if it had e renewed—that it should be kept on for at least e months. She was treated as he advised with the ults as shown.

Dr. Whitman said that he was glad to see such good ults from the open method. He thought that it uld follow the Lorenz operation when that had ed. He did not think the Lorenz attitude the cause anterior displacement ordinarily, but rather the de- nity of the neck and head of the bone. In the teral cases shown there was slight anterior displace- nt on both sides. On the side in which the acetabu- was excavated there was a bony outgrowth which e the femur a more secure support. Dr. Whitman l that in a number of instances he had operated this twist of the upper extremity of the head of bone. He had opened the joint, enlarged the tabulum when necessary and replaced the head of bone by rotating the limb inward. Subsequently normal relation was restored by osteotomy of the ft of the femur. After the joint is open one can the relation of the neck and head of the bone to condyles of the femur, and can demonstrate that manent replacement is impossible unless the de- nity of the bone is corrected. Dr. Sayre said he heard an expression from Dr. Lorenz in regard this technic. Dr. Sayre had asked him what his ctice was in cases where the anterior twist of the k of the femur is so great that when one puts the d in the acetabulum the toes are turned inward. these, if one succeed in placing the head in the tabulum the foot must be turned inward and could y be straightened by subsequent osteotomy in the ft of the femur. Dr. Lorenz replied that this was logical mode of procedure, but it did not seem to to be necessary. What he was looking for was a d functional result rather than perfect anatomical lacement and in his experience he had obtained re s functionally satisfactory to the patient by anterior osition in these cases. He cited a case in which of his colleagues had followed out partially the tment just outlined by Dr. Whitman. When he arrived at the stage where osteotomy should be e the parents threw up their hands at the idea of operation and went to Vienna where the non-bloody ration was performed, with double transposition, erior, to the great delight of the parents. In both the patients on whom Dr. Lorenz operated for Dr. re at the New York University and Bellevue Medi- College, he obtained anterior transpositions. He said that the head of the bone was not in the acetabulum—he did not pretend to have it in there—did not think it necessary to do so, but he said the children would have very excellent, useful legs the way he left them, and that was what all were anxious to have. One case was single, the other double. The "double" child walks a good deal as the "double" child did this evening. The child with "single" hip walks very excellently—runs up and down stairs with hardly a trace of limp. One can see she has not an absolute reposition when her clothes are off, and motion is slightly limited, and there is a tendency to turn the toe too much outward unless she thinks of it. Several people have guessed wrongly when asked which leg, as she ran up and down the room. Dr. Sayre said he had a case of double congenital dislocation of the dorsum of the ilium, which he saw when the girl, now nineteen years old, was a small child. The child fell downstairs, thrusting one leg through the banister, severely wrenching the hip. This fall converted the posterior luxation into anterior. That leg was one inch longer than the other, solid and stable, the other slipped around the dorsum of the ilium. She said: "This leg has been all well since I fell downstairs. If you can make the other as good as this, it is all I want." That was the attitude of Lorenz. Dr. Sayre said neither of the cases Lorenz had operated on for him had so good a functional and anatomical result as that of the single open operation shown this evening. The speaker said he thought Dr. Whitman had stated the case as tersely and as exactly as possible, and he considered it the logical and sensible thing to do in the majority of these cases.

Dr. Ogilvy said he had noticed in looking over statistics of cases operated on by Dr. Lorenz, that the majority resulted in anterior displacement. In several cases he distinctly remembered, operated on by the open method, he found the head and neck of the bone twisted anteriorly. It is easily understood that if these cases, with the neck and head of the bone twisted anteriorly be treated by the Lorenz method, the head of the bone will be anterior and we will have as a result, an anterior displacement. Dr. Ogilvy asked if that were not the reason why there are so many anterior displacements, the result of the Lorenz method—Why will not internal rotation rather than outward rotation obviate this result?

Dr. H. C. Fraenthal presented the case of a young man who came under observation on the tenth of the month. He said he had not opened his jaw for ten days—perimaxillary abscess. An attempt was made seven days ago to excise the abscess, which broke. The patient was admitted to hospital for observation. Since the breaking of abscess the jaw can be opened three-eighths of an inch. Has been on soft food for twenty-one days. No temperature, no pain, no septic chills or anything of the kind. A wisdom tooth extracted nine or ten days ago may have been the cause of the trouble.

CHICAGO SURGICAL SOCIETY.

Regular Meeting, held January 16, 1905.

The President, L. L. McArthur, M.D., in the Chair

Stricture of the Esophagus.—Dr. Daniel N. Eisendrath presented a patient who began to have difficulty in swallowing, with regurgitation of food, about one year ago, necessitating eventually a gastrostomy. This operation was done in New York, with apparently a good result. An esophageal bougie could not be passed beyond the level of the junction of the

manubrium with the gladiolus. He had the patient swallow a large amount of bismuth, and then made a radiograph, which showed the obstruction and to the left of it a tumor. The obstruction was a saccular one. After the passage of steel sounds, the man was able to swallow milk, but at present was feeding himself through the gastrostomy wound. This case showed the value of the X-ray and bismuth for diagnosing these conditions.

Actinomycosis of the Jaw.—Dr. William Hessert presented a young woman, aged fifteen years, who a few months ago presented a history of toothache and a swelling of the right jaw. A decayed tooth was visible, and the trouble seemed to be a necrosis of the jaw, with cellulitis in the surrounding tissue. Operation failed to disclose pus. There was a hard indurated mass, the bone being denuded. The wound healed, but the tumor increased in size. Later small areas of softening appeared, three or four of which were incised and in the discharge was found the ray fungus. The patient was put on large doses of iodide of potassium, and had improved steadily. The mass had diminished in size about one-half, and she could now open her mouth better than ever before.

Metastatic Renal Abscesses.—This patient consulted Dr. Hessert because of a necrosis of the right jaw. Some years ago the patient had necrosis of the right femur necessitating its amputation two inches below the trochanter. Later he had some abscesses of the back. The trouble in the jaw was diagnosed as an osteomyelitis. An incision was made and a small amount of pus was evacuated. The patient did well for about ten days, when he began to complain of pain in the right lumbar region. Repeated examinations of the urine finally showed a small amount of pus. The right kidney was increasing in size, and became tender. The general condition of the patient was indicative of sepsis, and a diagnosis of suppurating right kidney was made. The kidney was removed, and showed a number of abscesses in the cortical portion. The pus was found to contain *Staphylococcus pyogenes aureus*. The patient did well for a while, but finally complained of pain in the left kidney, which became large and tender. The pus showed in the urine. An incision was made, and many abscesses were found in the cortex of the kidney. These were evacuated with the finger, the wound was packed, and the patient made a slow but uneventful recovery.

Dr. A. E. Halstead, in the discussion, stated that the tumor which showed in the radiograph of Dr. Eisendrath's case probably was a diverticulum, although it might be an aneurism. Skiagraphing these diverticuli with bismuth was not so good as passing a soft rubber tube filled with shot, and then skiagraphing.

Dr. Eisendrath extirpated a kidney about five years ago for ascending pyelonephritis with multiple abscesses, and later doubted whether he did not make a mistake in doing so. Fortunately, the patient recovered.

Dr. A. H. Ferguson referred to a case he reported some years ago of multiple abscesses of the right kidney, where he excised some of the abscesses and opened others. The other kidney became involved two years later, but the patient refused operation and died from sepsis. In the kidney operated on no abscesses developed subsequently, adding strength to the practice of not extirpating such kidneys.

Dr. W. W. Harsha mentioned two cases of actinomycosis he had observed in the past year, saying that the tissue around the broken-down masses was very hard, almost gristly. This condition was so marked that he considered it a valuable diagnostic sign.

Dr. D. A. K. Steele favored instituting conservat treatment in multiple embolic abscesses. Nephrector however, should be the rule in tubercular cases.

Dr. Eisendrath said he had failed to find any e dence of aneurism or tumor in his case, after repea examinations, and he was unable to differentiate present between aneurism, tumor, or diverticulum.

Brain Tumor.—Dr. John E. Owens reported interesting and instructive case of cerebral tumor moved in two stages by the osteoplastic method, w subsequent wiring of the bone flap, and the introd tion of a gold plate. The primary result was excelle

Dr. Eisendrath mentioned the difficulties met w in performing these operations, one of them be hemorrhage from the scalp. In a case of Jackson epilepsy operated upon by him, the hemorrhage v so severe the patient was almost exsanguinated. had observed a number of cases in which it was alm impossible to keep the bone flap in apposition with remaining portions of the skull.

Dr. Ferguson had operated on a number of s cases, but in none of them had he any such favora results as Dr. Owens had in his case. He succee merely in securing temporary relief from the headac The hernia cerebri became enormous. He depended tirely on a sufficient number of hemostats and press to control hemorrhage from the scalp in these ca

Dr. A. E. Halstead had found that hemorrhage co be controlled with artery forceps and pressure. A years ago he operated on a case of brain tumor at base of the skull for the purpose of relieving press symptoms. He made trephine opening and evacuated ventricles. The intracranial pressure increased en mously, so much so that the brain tissue was forced through the small opening, through which the fluid v withdrawn from the ventricles. By tapping the v tricles, the patient's condition was improved and pressure was relieved.

Dr. D. A. K. Steele stated that while the ultim outcome of Dr. Owens' case was still in doubt, temporary relief and the prolongation of the patie life were of value. Reference was made to an int cerebral sarcoma, about two inches in diameter, wh he published about two years ago. The location of tumor in the motor area was easy, and its remo was not difficult. While there was no difficulty controlling the hemorrhage from the scalp, hemorrh from the longitudinal sinus was severe. He pac in an abundance of iodoform gauze, and succeeded controlling the hemorrhage. The patient was still a after twelve years.

Dr. Owens, in closing, stated that hernia of the br could be prevented by making the opening in the d at the base of the flap when this was possible. T could not be done in his case because of the natu opening at the top made by the tumor.

Hydrocele in the Female.—Dr. A. E. Halst and Dr. Chas. P. Clark reported jointly a case hydrocele in the female.

Dr. L. L. McArthur presented a case with a hist of calculi in the common duct and biliary passa One hundred and forty stones were removed. T patient died on the third day after the operation fr sepsis. On section of the liver, stones were found in the biliary ducts. He showed a gross specimen of liver. He also exhibited a skiagraph showing stones the kidney.

Dr. Eisendrath exhibited a specimen which ill trated the mechanism of rotary dislocations of the a upon the axis. He also showed a boy, sixteen ye of age, with syphilis hereditaria tarda. There wa

arked enlargement of the left tibia, greatly resembling riosteal sarcoma. Investigation revealed the probaity of syphilis in the parents. He also exhibited an ray of the pelvis and both femora, in which the head the left femur was entirely destroyed through the esence of a metastasis from a primary tumor of an descended testis.

BOOK REVIEWS.

s ELEMENTARY TREATISE ON THE LIGHT TREATMENT FOR NURSES. By JAMES H. SEQUEIRA, M.D., Lond., M.R.C.P.Lond., F.R.C.S.Eng., Physician in Charge of the Skin Department and Lecturer on Dermatology at the London Hospital. The Scientific Press, London.

THE therapeutic use of light depends so largely for its ccess upon the technic with which it is handled that it extremely important for any nurse called upon to emoy this agent to be familiar with the matter presented this little book. A brief summary of the more general pects of the question is followed by a careful descripn of the apparatus and its use which cannot fail to be assistance.

RACTICAL DIETETICS. By A. L. BENEDICT, A.M., M.D., Councillor American Gastro-enterological Association; Fellow American Academy of Medicine; Consultant in Digestive Diseases, City Hospital for Women, and Riverside Hospital, Buffalo. G. P. Engelhard & Co., Chicago.

THIS volume of some 400 pages deserves its title, for hile not neglecting the chemical and physiological prinples upon which the science of dietetics is based, it exunds them so simply and applies them so directly that e epithet "practical" is the one which occurs most adily in any comment upon it. How to supply the eds of the body for growth and repair, for heat and ergy, in conditions of health and of various types of sease is discussed thoroughly and clearly, but without due length, and with a certain pleasantness of style hich, although not generally considered essential in a rely instructive work, is nevertheless apt to render at instruction more effective.

IET IN HEALTH AND DISEASE. By JULIUS FRIEDENWALD, M.D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and JOHN RUHRÄH, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Octavo volume of 680 pages. W. B. Saunders & Co., New York, Philadelphia and London.

THIS text-book of dietetics is sure to prove helpful cause of its eminently practical character. Besides apters on the chemistry and physiology of digestion d on foods and stimulants, special dietaries are given r each of the infectious diseases, for various forms of sease of the stomach and intestines and in general for e many types of organic diseases. Besides this there e chapters on such special subjects as army and navy tions, dietaries in public institutions such as prisons d hospitals and recipes and diet lists. In a word, there ems to be nothing that the ordinary practitioner of edicine is expected to know with regard to food that es not find a place in this manual. There is scarcely page of the book that does not contain eminently sugstive material. There is very little of theory and idently much that has been gleaned from practical perience. We foresee for the book a well-deserved pularity

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, etc. By leading members of the Medical Profession Throughout the World. Edited by A. O. J. KELLY, A.M., M.D. J. B. Lippincott Company, Philadelphia.

THE present number of the International Clinics begins with an excellent article by Prof. George Hayem, of the University of Paris, on the Excessive Use of Drugs in the Treatment of Chronic Diseases, with Reference to Medical Intoxications. Another excellent article from a French source is that on Indications for the Dechloridation Treatment, by Adolph Javal. As is well known now, certain French clinicians have succeeded by lessening the amount of chloride of sodium consumed by patients, in reducing cardiac edema and checking the development of certain kinds of ascitic effusions, besides moderating hyperchlorhydria and even favorably affecting some cases of exudate dermatitis. It is in cases of Bright's disease particularly that the indication for the reduction of the amount of common salt are to be found.

There is a suggestive article from Sir Dyce Duckworth on the Incidence of Gout in the United States of America and in new communities generally. The present volume is well up to previous issues in general interest of practical clinical import.

FIRST ANNUAL REPORT OF THE HENRY PHIPPS INSTITUTE FOR THE STUDY, TREATMENT AND PREVENTION OF TUBERCULOSIS. February 1, 1903, to February 1, 1904. Published by the Henry Phipps Institute, Philadelphia.

THIS first annual report is noticeable principally as containing the lectures delivered by distinguished authorities on tuberculosis at the Phipps Institute during the past year. Among these are Trudeau's article, The History of the Tuberculosis Work at Saranac Lake, N. Y., Professor Osler's address on the Home and Its Relation to the Tuberculosis Problem, Prof. G. Sims Woodhead's address on The Morbid Anatomy and Histology of Pulmonary Tuberculosis, Prof. Hermann M. Biggs on the Administrative Control of Tuberculosis and Prof. Maragliano on Specific Therapy of Tuberculosis and Vaccination against the disease.

Besides these, however, there is an excellent résumé of the work of the Phipps' Institute during the past year, of which especially the chapter on neurological work in connection with tuberculosis is interesting and suggestive.

BOOKS RECEIVED.

ONE HUNDRED YEARS OF PUBLISHING. 12mo, 29 pages. Illustrated. Wm. Wood & Co., New York.

THE HOUSEBOAT BOOK. By Dr. W. F. Waugh. 12mo, 209 pages. Illustrated. Clinic Publishing Co., Chicago.

HOW TO STUDY LITERATURE. By B. A. Heydrick. Third Edition. 12mo, 150 pages. Heinze, Noble & Eldredge, New York.

DICTIONARY OF NEW MEDICAL TERMS. By Dr. G. M. Gould. Quarto, 571 pages. P. Blakiston's Son & Co., Philadelphia.

BEING DONE GOOD. By Dr. E. B. Lent. Second edition. 8vo, 345 pages. Illustrated. Brooklyn Eagle Press, Brooklyn, N. Y.

CLINICAL HEMATOLOGY. By Dr. J. C. DaCosta, Jr. Second Edition. 8vo, 591 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

TEN LECTURES ON BIOCHEMISTRY OF MUSCLE AND NERVE. By Dr W. D. Halliburton. 8vo, 160 pages. Illustrated P. Blakiston's Son & Co., Philadelphia.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

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ORIGINAL ARTICLES.

ALCOHOL AS FOOD.[1]

BY RUSSELL H. CHITTENDEN, PH.D., LL.D.,

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ALCOHOL and alcoholic fluids have been the subject of so many studies and of so many essays that it threatens to be somewhat difficult to find a new point of view, until additional facts are discovered. Yet I shall venture upon a line of reasoning that may perhaps place the matter in a somewhat different light from that usually presented, though basing my argument upon facts that are only in part at least comparatively new.

Does alcohol, when taken into the healthy body in moderate quantities, serve as food, *i.e.*, can it be oxidized with liberation of its energy in the form of heat or work, and can it play the part of a true non-nitrogenous food in replacing the fat and carbohydrate of the daily diet? In the literature of the subject we find many answers to these questions, but if we confine our attention to the results obtained by the more accurate methods of recent days, especially the painstaking results reported by Prof. Atwater and his coworkers in this country, Rosemann and Rosenfeld in Germany, and many others, there seems to be no doubt that alcohol when taken in moderate doses can be oxidized in the body and its energy made available for the needs of the system. It is of course understood that this statement does not carry with it the idea that alcohol is to be recommended for its food value, or that prior to its oxidation it may not exert some physiological effect the reverse of beneficial. Still, there is no question to-day that alcohol can be burned in the body and that the system may derive energy therefrom, as in the oxidation of sugar or fat.

It is to be noted, however, that in the preceding statements "moderate doses of alcohol" are referred to, for it is well understood that when alcohol is introduced in compartively large quantities, considerable of the alcohol is excreted unchanged through the lungs and through the kidneys, implying quite plainly that the body cannot conveniently handle large quantities. Further, when comparatively large amounts of alcohol are taken, not only is alcohol itself excreted, but there may appear in the urine and in the expired air aldehyde and acetic acid, products of the partial oxidation of the alcohol, indicative of the incomplete combustion of the ingested foodstuff.

In view of these facts, we need to know what is meant by moderate quantities, that we may form some estimate of the extent to which alcohol can be burned in the body. If the system is capable of oxidizing only a small fraction of a small dose of alcohol, leaving the bulk of the substance to be excreted unchanged, then obviously the food value of alcohol must be rated very low. In an article, published recently in the *Lancet*,[1] Dr. W. H. Goddard records some experiments made to determine the amounts of alcohol that can be taken into the system and be practically all burned up, *i.e.*, without any appreciable amount being excreted unchanged, or only partially oxidized. His experiments were conducted on dogs, and appear to have been most carefully planned. I will give briefly the results of two experiments:

A dog weighing 12.4 kilograms, after a twenty-four hours' fast, was given 16 grams of absolute ethyl alcohol, mixed with an equal amount of puré water. The animal was then placed in a respiration chamber for five and a quarter hours and the expired air collected. This air on analysis was found to contain 2.14 per cent. of the alcohol administered, but no aldehyde. The urine, drawn by a catheter, was found to contain 2.89 per cent. of the alcohol introduced. The animal being killed, no alcohol or oxidation product of the alcohol could be detected in the organs or tissues.

When 32 grams of absolute alcohol were given to a dog of 12.1 kilograms body-weight, the expired air collected for nine and one-quarter hours contained 2.23 per cent. of the alcohol administered, and in addition there was present aldehyde equal to 2.2 per cent. of the alcohol introduced. Further, the urine contained alcohol to the amount of 2.21 per cent. of the alcohol introduced into the body, while the tissues of the animal were found to contain a mere trace only. In the liver, however, acetic acid was present, equal in amount to 2.1 grams of alcohol, corresponding to 6.5 per cent. of the original alcohol. Increase in the dosage of alcohol was followed by a corresponding diminution in the extent of its oxidation.

From these data it is evident that, with the introduction of 16 grams of absolute alcohol there was complete oxidation of 95 per cent. of the alcohol, showing an excellent utilization of the substance, while with an introduction of 32 grams of alcohol 13.2 per cent. escaped complete oxidation, showing a utilization of only 86.8 per cent. of the alcohol introduced. Dr. Goddard, in his conclusions, states that when alcohol to the amount of 1/750th part of the body-weight of

1 Read at the New York Academy of Medicine, February 20, 1905.

1 The Physiological Action of Ethyl Alcohol considered as a Food: A Research. The Lancet, Vol. CLXVII, No. 4234, p. 1132.

the animal is given, nearly 95 per cent. of the alcohol is made use of as food. Again, he states "*in small doses only* alcohol is most undoubtedly a food."

It is of course to be remembered that these experiments were conducted upon dogs, and we cannot be quite certain that alcohol would undergo oxidation at exactly the same rate per kilo of body-weight in man. But, assuming that such is the case, we may query whether a utilization—up to 95 per cent.—of 16 grams of absolute alcohol per 12.4 kilograms of body tissue is such a poor utilization as would at first glance appear, or whether such a dosage, when figured to the average body-weight of man would prove so very small, especially if calculated in terms of a strong alcoholic beverage like whisky, or a still milder alcoholic fluid, like wine.

The dog weighing 12.4 kilograms oxidized completely in five and one-fourth hours 95 per cent. of 16 grams of absolute alcohol, *i.e.*, 15.2 grams. This means that 1.2 grams of absolute alcohol per kilo of body-weight can be completely oxidized. Therefore, a man of 70 kilograms body-weight (about 160 pounds) would oxidize completely 84 grams of absolute alcohol under like conditions. The strongest whisky contains, as a rule, not more than 50 per cent. of absolute alcohol. Consequently, the above quantity of alcohol would correspond to at least 168 grams of pure whisky. Further, it is to be recalled that in these experiments the absolute alcohol given was diluted with an equal amount of water and introduced at one time. In other words, if this is a safe line of reasoning, the tissues and organs of a healthy man of 160 pounds body-weight are capable of oxidizing the alcohol of 168 grams of pure whisky (even if taken at one time) completely into carbonic acid and water in the course of a few hours, like any other non-nitrogenous foodstuff. This amount of whisky equals 175 cubic centimeters or approximately six ounces, and would fill two large wine glasses. Obviously, such a dosage of whisky, if taken at one time, would produce uncomfortable results with the ordinary individual, but the illustration will serve to indicate the degree to which alcohol can be oxidized in the body and thus serve as fuel. It must be remembered, however, that the experiments which we are using as the basis of our calculation were made upon dogs in a fasting condition, and further, they had been previously purged, so that their tissues were in a semi-hungry condition, and consequently they were doubtless able to utilize a larger proportion of alcohol..

These figures certainly indicate that the body is quite capable of burning and using as food fairly large amounts of alcohol, or, perhaps we should say, of alcoholic drinks. If we apply this same line of reasoning to wine, say of the claret type (claret containing 10 per cent. of alcohol), we find that a man of 160 pounds body-weight would be able to oxidize completely the alcohol contained in approximately one quart of wine of this type.

These general conclusions are essentially in accord with the results of the experiments reported by Professors Atwater and Benedict on men in the respiration calorimeter, where 72 grams of absolute alcohol were given in the course of the day, *i.e.*, six ounces of whisky, the only difference being that the alcoholic fluid was taken in six equal doses, three with meals and three between meals. On an average, Prof. Atwater found that over 98 per cent. of the alcohol so introduced was burned or oxidized, thus showing indeed even a better utilization than the body ordinarily manifests toward the carbohydrates or fats of the daily diet.

Again, we can make this matter somewhat clearer perhaps by a comparison of the relative value as fuel of alcohol and carbohydrate, such as sugar or starch. One gram of absolute alcohol yields the same amount of energy as 1.73 grams of carbohydrate, or, in other words, 4 grams of alcohol are isodynamic with 7 grams of sugar or starch. Consequently, it would appear that the oxidation of 84 grams of absolute alcohol or 168 grams of whisky is the equivalent of the oxidation of 147 grams of pure sugar or starch, or about one-third of a pound, *i.e.*, would yield the same amount of energy in the form of heat or work and with less expenditure of energy on the part of the body in accomplishing it.

This conclusion, however, may not be strictly correct in the sense that the above quantity of alcohol is the exact equivalent of the isodynamic quantity of carbohydrate in the body of the healthy man, or would serve the purpose of food in the same degree. We may indeed take different positions as to the proper definition of a food. The physiologist is ordinarily inclined to say that food serves two distinct purposes, viz., to build up and repair the tissues of the body and to yield energy. To build up muscle tissue (the nitrogenous part of the tissue) only proteid food is available. Starch and fat even have no power in this respect, except so far as they may protect the combustion of proteid. Carbohydrates and fat, however, are the chief reliance of the body as sources of energy, and as a consequent protection for the more essential proteid or albuminous materials of the tissues. The fact that alcohol can be burned in the body in fairly large quantities, and that its combustion insures a corresponding amount of energy, renders plausible the view that alcohol can replace fat and carbohydrates as a source of energy; an idea which is reinforced by experimental evidence. Hence the view that alcohol must be ranked as food. Further, it is equally evident that, like carbohydrate, alcohol can protect tissue proteid and tissue fat, perhaps even to the extent of its isodynamic equivalent. On the question of saving proteid, however, we have to contend with another action of alcohol, viz., its well-recognized power

of stimulating proteid metabolism, under some conditions, apparently more marked in some individuals than in others. Still, in a general way, it is safe to say that alcohol does tend to protect the proteid of food or body tissue, acting in this respect much as carbohydrate foods do.

With these facts before us, and with a consequent recognition of the ability of the body to burn moderate amounts of alcohol with utilization of the resultant energy, thereby placing alcohol as a foodstuff on the same level as fat and carbohydrate, I wish to present certain reasons—purely physiological, why it is quite misleading to rate alcohol as a non-nitrogenous food, the equal of fat and carbohydrate; and here again let me say that all physiologists clearly recognize the possible pharmacological action of alcohol prior to its combustion, which action necessarily introduces many other factors to be considered in any estimate of the wisdom of utilizing alcohol as a foodstuff. It is not with these questions, however, that I wish to deal, but with certain facts regarding the action of alcohol on metabolism, which tend to differentiate alcohol as a foodstuff very sharply from both fat and carbohydrate.

Some eighteen years ago experiments were carried out in the writer's laboratory by Messrs. Charles Norris, Jr., and E. E. Smith on the influence of alcohol upon proteid metabolism.[1] These experiments were conducted upon dogs in nitrogenous equilibrium and led to the conclusion that alcohol, in such doses as we used, can serve as a non-nitrogenous foodstuff, protecting in a measure the proteids of the tissue much as carbohydrate foods do. At the same time, we observed a very striking change in the output of uric acid in these dogs under the influence of alcohol, *i.e.*, the excretion of uric acid was greatly increased, while the output of total nitrogen was diminished. In other words, alcohol, while it lowered the rate of proteid catabolism, exercised a special influence upon the rate of production or elimination of uric acid, increasing very notably the output of this substance through the urine. We immediately recognized the significance of these results and saw the necessity of a careful study of the question on man, but for a long time we were unable to arrange for an experimental study of the matter, under suitable conditions. Recently, however, Dr. S. P. Beebe, while in our laboratory, has carried out a most thorough series of experiments on man, and the results, published[2] a short time ago, afford a most interesting and important series of data bearing on this question.

The experiments were all conducted upon young men, five in number, of good health and regular habits, none of whom was accustomed to the use of alcoholic fluids. The results of the many experiments all lead to the conclusion that alcohol, even when taken in very moderate amounts, causes a noticeable increase in the amount of uric acid and of purin bases excreted in the urine. This increase in the amount of uric acid excreted is not connected in any way with the marked diuresis which the alcohol produces, *i.e.*, it is not due to a simple sweeping of urates, already formed and circulating in the blood, out of the system. Further, it was noted that alcohol does not cause this change in the output of uric acid when taken without food or with a purin-free diet. The increase of uric acid appearing in the urine, under the influence of alcohol, is not then of endogenous origin, but is unquestionably associated with some change in the rate of oxidation in the liver of uric acid of exogenous origin, or else there is a change in the rate of production of uric acid from the precursors of uric acid contained in the food.

In following out the rate of increase in the output of uric acid by hourly analyses of the urine, Dr. Beebe found that the maximum increase occurs at the same time after a meal as it does when purin food without alcohol is taken. The obvious conclusion from Dr. Beebe's experiments is that absorbed alcohol reaching the liver influences at once the metabolism of the proteid cleavage products, especially those which come from the breaking down of nuclein compounds. If we assume, as stated by Dr. Beebe, that the increased output of uric acid under the influence of alcohol, is due to an impairment of the oxidative powers of the liver, then we have to consider not only the influence of alcohol in diminishing the destruction of uric acid, but also the possibility of other oxidative processes in the liver being affected. It is to be remembered that the liver performs a large number of oxidations and syntheses, all tending toward the destruction of toxic substances which would otherwise be distributed through the system, hence it would seemingly follow that alcohol may not only cause an increased amount of uric acid and other purin compounds in the system, but it may also interfere with other processes normally occurring in the liver and thereby lead to the presence of other undesirable substances.

However this may be, it is, I think, quite plain that while alcohol in moderate amounts can be burned in the body, thus serving as food in the sense that it may be a source of energy, it is quite misleading to attempt a classification or even comparison of alcohol with carbohydrates and fats, since, unlike the latter, alcohol has a most disturbing effect upon the metabolism or oxidation of the purin compounds of our daily food. Alcohol, therefore, presents a dangerous side wholly wanting in carbohydrates and fats. The latter are simply burned up to carbonic acid and water, or are transformed into glycogen and fat, but alcohol, though more easily oxidizable, is at all times liable to obstruct, in some measure at least, the oxidative processes of the liver, and probably of other tissues also,

1 Journal of Physiology, Vol. XII, p. 220.
2 The Effect of Alcohol and Alcoholic Fluids upon the Excretion of Uric Acid in Man. American Journal of Physiology, Vol. XII, p. 13.

thereby throwing into the circulation bodies, such as uric acid, which are inimical to health; a fact which at once tends to draw a distinct line of demarcation between alcohol and the two non-nitrogenous foods, fat and carbohydrate.

Lastly, I am inclined to emphasize another observation made by Dr. Beebe, viz., that certain alcoholic drinks, such as port wine, for example, exert a much greater influence upon the excretion of uric acid, than a corresponding amount of alcohol, thus suggesting that even moderate drinking of alcoholic beverages may be attended with even greater disturbance of the metabolic phenomena of the body than prevalent ideas would lead us to believe. In this connection, however, as a matter of clinical significance, it is to be remembered that this deleterious influence of alcohol and alcoholic drinks is exerted noticeably only in connection with exogenous uric acid; hence, the use of alcoholic fluids, in many diseases where a light or non-purin diet is used, would not be followed by an increased output of urates. In other words, under these conditions the beneficial effects of alcohol might be looked for without the accompaniment of the disturbed purin metabolism. As an adjunct to the ordinary daily diet of the healthy man, however, alcohol cannot be considered as playing the part of a true non-nitrogenous food.

ALCOHOL IN DISEASE.*

BY GEORGE L. PEABODY, M.D.,
OF NEW YORK.

WHEN your alluring president asked me to contribute a paper not to occupy longer than fifteen minutes in the reading, to the subject of the therapeutic uses of alcohol I was sufficiently audacious to tell him that the evening would be entirely filled without touching upon that branch of the subject. When the hour arrived for the preparation of the paper it seemed a little difficult to occupy so much of your time as the president graciously placed at my disposal; and then very soon the subject seemed to grow, as I progressed, so that to keep within the limits of the president's condition and of your patience, will be a little difficult.

Most of the recent work upon alcohol relates to its food-value and its toxicity, to alcoholism and the pathological conditions which it induces, and to the legislation bearing upon it: but very little work has been done and very few publications have appeared of late years upon its therapeutic uses.

A little that is new has been ascertained with regard to its *local* uses, both its interstitial injection into inoperable or recurrent uterine carcinomata[1] and angiomata[2] and also its power to permeate the epidermis and even the skin itself and to disinfect the skin and bring about local changes in the blood-supply and thus relieve certain symptoms, even in regions that cannot be considered to be entirely superficial.

Rieländer[3] made an experiment upon himself, which seems to explain this latter point, perhaps more heroically but not more satisfactorily than has been done by using guinea-pigs. He cleaned the skin of the extensor side of one forearm very carefully by diligent scrubbing with hot water and soap for five minutes. Then he rubbed it for five minutes with a 20 per cent. solution of copper nitrate in 96 per cent. alcohol and then subsequently bathed the part with a 10 per cent. solution of potassium ferro-cyanide for ten minutes. After this the skin was incised without anesthetic to the depth of the superficial fascia. The red coloring produced by the chemical reaction was found not only through the entire thickness of the epidermis but also in the connective tissue of the skin. It was very abundant in and about the hair-follicles; on the other hand, the sweat-glands and their neighborhood were usually free from it.

Other local uses of a surgical kind, as in disinfection of hands and treatment of hernia[4] deserve to be mentioned in passing. This power of alcohol to penetrate the epidermis and reach the skin even in its deeper layers is of very great practical use in conditions of superficial inflammation. The continued application to the abdomen of compresses soaked in alcohol and covered by gutta percha and cotton wool has given great relief in peritonitis,[5] and to one writer has seemed to cure[6] the disease where operation has been declined or is impossible.

Following out these ideas I have found it of great value in various painful conditions when applied in this way such as peripheral neuritis and phlebitis. In herpes zoster[7] there is probably no better application to relieve the pain, which effect may be confidently predicted.

Many kinds of local infection are amenable[8] to this local use of alcohol. If alcohol is carefully and persistently used suppuration can often be averted in inflammation of lymphatics as of buboes, for example, and in threatened abscess of breast, in carbuncle, furuncle, paronychia and other allied conditions, if only its application be made sufficiently early and with sufficient persistence.

One of the earliest local uses was in phlegmonous[9] inflammation involving the external ear and temporal and mastoid regions. Many of these cases are illustrations of its antiseptic power: its power to relieve pain when used in this local way is probably to be explained by its causing a dilatation of blood-vessels and thus diminishing congestion and consequent pressure.

The alcohol is to be applied on a compress consisting of six or eight thicknesses of cheesecloth soaked with it and this covered with gutta-percha paper and cotton wool.

Alcohol is to be renewed several times a day, the frequency depending upon the location, and

* Read at a meeting of the New York State Medical Association, New York County, February 20, 1905.

the thoroughness with which it is covered by impervious dressings. The object is to keep the skin saturated with it.

It is well to remember that where the epidermis is thin this treatment, if employed at all, must be resorted to very cautiously. I should not apply it to regions like the scrotum or to very young children anywhere unless it is considerably diluted. I once knew a deep slough to follow its too energetic use over the coccyx in a case of coccydynia, by a surgeon noted for his thoroughness. The suggestion to use it in this case was made by me; and it is an interesting commentary on the relative standing of medicine and surgery before the community that he got the credit of curing the coccydynia and I of causing the slough!

Another modern use of alcohol is as an antidote to poisoning by carbolic acid.[10] The discovery of this relation was accidental. A woman swallowed an ounce of carbolic acid in whisky with suicidal intent. The doctor found her unconscious, her extremities convulsed, pupils tightly contracted, breath smelling of carbolic acid. He was astonished to find that in spite of the size and concentration of the dose her mouth, lips and tongue showed no evidence of burning by the acid. He washed out her stomach freely until the washings no longer smelt of carbolic acid. She became conscious and subsequently recovered completely.

This experience led the doctor to try alcohol locally in treating painful burns caused by the acid. The whitened areas on the skin ceased to burn and the pain entirely disappeared from them when they were covered with cotton soaked in alcohol Others soon confirmed this power of alcohol.[11] Since then whisky has been looked upon as an agent of great value in poisoning by carbolic acid.

In spite of these additions to its range of applicability the purely therapeutic uses of alcohol have been gradually reduced to very few; and it is gratifying to note that there has been, during recent years a distinct tendency to recede from the very liberal, almost reckless administration of it by the doctors of a former time. As a reaction against that time many modern medical writers are inclined to throw it away altogether as being either useless or toxic under all circumstances. Among these may be mentioned Kassowitz,[12] Bunge, Rosemann, C. Fränkel,[13] as perhaps the most conspicuous of its opponents.

That very large doses of it render animals less able to resist infections of various kinds has been shown by Fränkel[14] and his pupils as well as by others; but Meltzer[15] very properly criticizes all the experimental work which leads to this conclusion on account of the size of the doses employed. He says: "They do not throw any light upon the question whether conservative doses of alcohol properly given to a patient sick with an infectious disease, and under proper management and care, are harmful, indifferent or useful."

Meltzer, in the valuable paper just quoted, strongly favors the use of alcohol in diseases like typhoid fever and pneumonia and quotes an imposing array of modern clinicians of vast experience in favor of it. Among them are Curschmann, Pel, Juergensen von Jaksch and von Noorden.

Its use in disease is still strongly advocated by V. Leiden[16] who thinks that in acute febrile diseases it cannot be dispensed with and that in them it is capable of arousing the heart to a more energetic performance of its function. He regards the disposition to discard it as fanatical and wholly without justification.

Binz[17] also strongly urges its usefulness in disease, while admitting, as most thoughtful writers do, its uselessness in conditions of health and of normal nutrition. He still claims for it two attributes, namely its food-value and its value as a stimulant both of heart and of respiration and believes that its utility is not open to question in conditions of weakness and collapse.

His opinion as to food-value is based upon the conclusion so generally received as to its undergoing oxidation in conditions both of health and of disease, and thus saving waste of other tissues, both carbohydrate and nitrogenous.

George Bonne,[18] of Holstein, published a work in Tübingen, in 1899, in which he advocates total abstinence on the part of doctors, but very clearly sets forth the value of alcohol in certain pathological states which he restricts to a very small number.

Unbiased clinical experience seems to justify the belief that in alcohol we have still the best means of stimulating the heart and thus increasing a low blood-pressure in many pathological states.[19] Necessity for its use in this way may arise both in conditions of primary weakness or syncope, and in enfeeblement due to acute febrile disease.

It is not intended to deny that it is often prescribed carelessly, unjustifiably and inappropriately. I have seen patients, both adults and young children, that had been kept in a condition of semi-intoxication for days, whose head-symptoms promptly disappeared when this drug was inhibited. The very evident evils attending its misuse do not justify us, however, in going to the extreme of abolishing it from our list of therapeutic weapons.

Although many cases of pneumonia and the acute fevers never need alcohol in any form or at any time, nevertheless it must be admitted that many of these cases do need stimulation, and that for them there is no known substitute that will quite replace alcohol. Conditions of feeble circulation with all the alarming symptoms that indicate them, may sometimes be helped by digitalis, strophanthus, strychnine, adrenalin, caffeine and the rest, but there is no

one of them upon which so much reliance can be placed as upon this one—indeed in many cases it is worth more than all of them put together.

I am quite willing to admit that all of the symptoms of intoxication, even the very earliest of them are to be ascribed to a paralytic effect exerted by it upon the cerebral cortex and are no part of its stimulating influence, and that there is no justification for the causation of them under any circumstances; but when all has been said against alcohol (and no hospital doctor of experience in any city in the world will minimize its power for evil) it still remains, in my opinion, unique in its general applicability to the accomplishment of the clinical ends to which I have referred.

As an antipyretic its powers are too feeble to make it of value: but it is of very great importance that the presence of fever does not interfere with its usefulness. Practically it often seems as if fever did decidedly interfere with the therapeutic activity of digitalis and others of its class.

To decide on the case that needs it and the dose that should be given is by no means always easy even for the experienced practitioner. A combination of high temperature, especially if persistent, with delirium and other signs of profound nervous prostration, together with a pulse which is rapid, easily compressible, possibly dicrotic, or of irregular force—this combination always calls for alcohol. But this special series of symptoms may not always be present when alcohol is needed. Thus the pneumonia and general bronchitis of old age may, without fever, loudly call for such stimulation.

If one were compelled to depend upon the indications supplied by a single organ, reliance should be placed upon the heart; and its investigation should include a careful study of the pulse and of the heart-sounds, especially the second aortic sound.

In these acute conditions, the aid of alcohol may often be reenforced by combining it with one or more of the others that have been mentioned, but there is not one among them that can be depended upon to replace it.

In the later stages of these diseases there may be no fever at all and yet the heart-symptoms may be urgent enough to demand alcohol. In all of these conditions in adults a half ounce of whisky every three, four, five or six hours is a good dose to begin with, and it may be increased or diminished according to its effects; and perhaps more important still is the fact that it should be a matter of conscience with the doctor to see that its administration is discontinued as soon as it is no longer needed.

There is little practical danger of engendering the alcohol habit by giving it to a fever patient; but it is well to bear in mind the fact that this danger increases progressively as the patient approaches a condition of health.

In general it is not unusual to see numerous obvious beneficial effects follow its judicious administration. The tongue becomes less dry, the pulse becomes slower and fuller, the skin more moist, the wakefulness and delirium less marked, the powers of digestion and assimilation improved.

Brunton has called attention to the fact that useful indication regarding the effects of alcohol and the regulation of its dosage may be obtained by the doctor if he will remain at the bedside occasionally for a quarter of an hour after the administration of a dose and watch the pulse, tongue, respiration, skin and general conditions. He will thus be able to see whether benefit is really resulting from it and to regulate the dose according to the needs of the individual case more intelligently then if he merely prescribes it in routine fashion and allows a day to elapse before he sees his patient again.

I am quite willing to subscribe to the closing statement of Meltzer's paper: "Alcohol in health is often a curse; alcohol in disease is mostly a blessing," or possibly, it might be safer to say that in disease it is a blessing when it is properly used.

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THE HEALTH OF THE NATION.[1]

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The health of the nation seems rather a large topic, yet not too large for hopeful and practical consideration, nor yet so large as would be a kindred topic, the health of all nations, which is likewise one for serious and hopeful consideration. Indeed, these two subjects have a direct bearing one upon another, and one cannot be adequately considered without considering the other.

It is a somewhat trite idea, but one whose significance is of great present import, that the nations of the earth to-day are more nearly related than ever before in the world's history. "Not only has the 'narrow frith' been practically abolished," says a recent writer, "but the wide ocean is traversed by passenger ships in five days, and by thoughts put into words in a few seconds. All the world has become one neighborhood so far

1 Address before the New York State Medical Association, New York County, at the New York Academy of Medicine, January 16, 1905

as relates to distances." In no manner has this been more strikingly shown than in the warfare against contagious disease. But a few years ago a violent epidemic of yellow fever in Cuba would excite no more than passing notice, while to-day the news of two cases in the far-off neighborhood of Santiago is immediately wired throughout the United States and foreign countries. A few cases of bubonic plague in the Orient, which a few years ago would receive no attention, are instantly reported and published throughout the United States, and one case of cholera on a ship in the Mediterranean is likewise immediately telegraphed to the principal cities of the world. International congresses, conferences, and conventions, are frequent, bringing the nations together as one family in the struggle against these foes of mankind. As in 1892 when a case of cholera appeared in Jersey City, the New York Board of Health took active interest therein, so is the United States Government interested when epidemic disease is reported in England, France, Germany, Turkey, Egypt, or any port in the Orient, for communication therewith is now swift and frequent. And so closely related are we in health matters to our neighbors of Mexico, Central and South America that periodical international sanitary conventions have been agreed upon by the several republics, and a permanent international sanitary bureau of American republics has been established and is maintained. I need further to refer only to the international congresses of medicine, of hygiene and demography, of tuberculosis, leprosy, and other allied subjects, to show how closely the nations are getting together in the effort to prevent and suppress disease.

We hear much at the present time of international peace conferences and arbitration treaties. Is it too much to expect, as a corollary or parallel movement, the cooperation of nations to prevent and suppress communicable disease? There is at present pending before the Senate of the United States a convention—practically a treaty—subscribing to the findings of the international conference of Paris, 1903, embodying the principles and practice necessary on the part of all nations for successful warfare against plague and cholera.

The International Sanitary Conventions of American Republics, previously mentioned, were instigated by the obvious advantage of an agreement for the sanitation of all yellow fever infected seaports. Seaports being the points of contact between nations, would properly be the first objective points in international sanitation, and their undoubted consequent prosperity would cause the sanitary movement to extend to other cities.

International sanitation might well be considered as adjunctive to the movement for universal peace. I believe it would be less difficult of achievement than absolute arbitration, or at any rate it could be made a powerful influence in establishing the latter. A former president of the French Republic, Monsieur Casimir Perier, at the opening of the Hygienic Conference in Paris, in 1894, said: "The international principles, which had their origin in the laboratory and are based on science, are the only ones which bind nations together with strong ties, and establish equitable and immutable laws."

This principle may well be considered by those who are seeking universal peace, and international responsibility with regard to disease is a subject worthy of the attention of all interested in the development of international law. So far as I know there is no mention in the treaties on international law of the responsibilities of governments to one another in matters of public health, but the time is ripe for adding such a chapter.

I quote from a recent writer: It seems "that nations are beginning to develop a conscience and a sense of justice for the rights of other nations. As a whole, the peace movement is another step toward the actual attainment of the ideal perfection of government." With this growing sentiment of harmony and fraternity among the nations there should be developed an international sentiment regarding sanitation and suppression of disease. If, as Tolstoi says, the only substitute for war is religion, international sanitation would be a powerful weapon in the hands of religion, if indeed it could not in itself be made a substitute for war. It surely would furnish a plain upon which nations might meet. It suggests a common enemy—disease—against which all might combine without fear of international complications, and would furnish a more worthy object than war for the expenditure of energy and money.

As to the health of this nation, the subject may be considered under two heads, the exclusion of disease and the extinction of disease. The former, which embraces the subject of quarantine, I will not discuss, as it may be considered by the distinguished gentleman who is to address you on the health of the port. As to the extinction of the ordinary communicable disease, is the idea one that is visionary or has it a good basis in scientific achievements and in practical results already attained?

It is not my purpose to burden you with statistics, but surely enough has been widely published to show a marked diminution as the direct result of special effort, and to encourage the belief that in the future most of these diseases may be as rare as they are now common. Their subsidence or disappearance will be due chiefly to good laws and effective administration. Good laws imply good organization, and it may be profitable to consider for a moment the health organization of the United States as it exists to-day.

In general, I believe, this organization is a proper one, but defective in many of its details. The United States Public Health and Marine-Hospital Service has, under various acts of Congress, certain maritime quarantine functions and interstate quarantine functions. It has also a hygienic laboratory "for the investigation of

contagious diseases and matters pertaining to the public health."

This last is generous and broad legislation, but is limited to laboratory investigations. Therefore, certain other investigations, which are desirable, cannot be made; for example, an investigation into the sanitary conditions at certain health resorts where tuberculosis patients are gathered in great numbers. I mention this simply as an illustration, but efforts will be made to meet this difficulty. The epidemic appropriation under which investigations other than laboratory can be made, is limited to certain specified diseases, namely, cholera, yellow fever, smallpox, typhus fever, and bubonic plague. The laboratory has an advisory board through which it is brought into relation with the medical departments of the army and navy, the Bureau of Animal Industry of the Agricultural Department, and through five distinguished scientists with the laboratories of leading institutions of learning. Thus the scientific pulse of the service is brought in contact with the profession.

In the practical administrative work of a sanitary character, the service is brought into relation with State boards of health and quarantine officers, through annual conferences required by law, and occasional conferences called either by the Surgeon-General or by the State health authorities.

Every State and Territory has a health department consisting either of a health commissioner, or of a State board of health, which has about the same relation to county and municipal boards of health as the national service has to the State organizations.

The chain of organization, therefore, seems theoretically a good one, and it would appear to be the part of wisdom to perfect and strengthen every link in the chain. The chain has not been forged all at once. Link after link has been added, and the several links strengthened as the occasion seemed to demand. In a growing country this seems to be the natural and proper method. The other method has been tried and failed.[1] So that our sanitary system must be one of gradual growth.

Thus far I have spoken only of the official health organizations, which are, of course, the most potent of all, based upon the statutes of the States and the nation, continuous in their operations and not dependent upon spasmodic effort or ephemeral enthusiasm. Yet it is impossible to ignore the valuable results of auxiliary organizations, voluntary in character, but inspired by noble and patriotic motives. They are too numerous to mention in detail, but I may refer to such organizations as the great American Medical Association, the American Public Health Association, State, county, and city medical societies, and the auxiliary sanitary associations that exist in so many of our States and cities. Through these public sentiment is developed which crystallizes into statutory laws and organizations.

One of the most common pleas of the sanitarian of to-day is for a wider diffusion of knowledge of hygienic and sanitary principles. It has been frequently said that sanitary science is far in advance of its practical application. The facts are known, but not to a sufficient number, and appeals are often heard for the introduction into schools and colleges of more instruction in these essential and easily comprehended subjects. The plea is justified by every consideration, but I should like to call attention to the necessity of the spread of sanitary information among intelligent adults, among the learned, and the wise; among the men who govern our cities and our States, and among our legislators. The knowledge I would seek to have impressed upon them is the value of sanitation in the advancement of the individual happiness and national, State, and municipal welfare. Too many regard sanitation as an ideal matter, efficacious theoretically. They should be impressed with the knowledge that improved conditions can and must be attained, and that bad sanitary conditions indicate sloth, a willingness to endure and ignore, characteristic of the least civilized and cultivated communities. The possibility of sanitation in the advancement of civilization should be impressed upon them, so that in addition to their high ideals of civil government they may also entertain ideals of sanitary advancement far beyond their present standards. Their influence and aid will then be more readily given when measures are brought before them for consideration or action.

There is one method of popular diffusion of knowledge which I have referred to on previous occasions, and which seems worthy of further consideration. It is the making of sanitation an issue in local politics. Issues might be made on efforts to suppress the ordinary diseases by municipal improvements, particularly in the worst portions of a city. I am aware that these improvements are liable to be unpopular among those whose excessive profits on investments would be unfavorably affected thereby, and even among those whose individual physical welfare is to be improved. But these difficulties can be overcome if the political movement is shrewdly and fairly managed; and these issues being the subject of popular discussion, hygienic and sanitary knowledge would be brought out and broadly diffused.

This idea has already been given expression by an association great in numbers and influence. At the recent annual meeting in San Francisco (last November) of the American Federation of Labor three hundred delegates were present, representing one hundred national and international labor unions, with a membership of about two million. In that convention was passed the following resolution, which seems to me significant of the earnest and laudable attitude of these unions toward the sanitary movement. The reso-

[1] A National Board of Health was established in 1879, but after four years its operations were discontinued and later the law creating it was repealed by Congress.

lution was referred to the committee on resolutions and adopted by the convention on the tenth day of its session. (Resolution No. 157.)

Whereas, In the proper embellishment of our towns and cities, by parks, monuments, ornamental buildings, boulevards, and driveways, there is too frequently an utter neglect in the removal of insanitary and unhealthful conditions in the less favored localities, and

Whereas, In our opinion one of the first duties of town and city governments is to make wholesome, by good drainage, paving, water supply, and correct tenement house construction, those portions of cities and towns that are now neglected in these respects, thus imperilling the health and happiness of the working people; therefore, be it

Resolved, In the interest of the poor and well-to-do also, town and municipal councils should give greater legislative attention with adequate appropriations to the removal of these evil conditions in the less favored localities, and be it further

Resolved, That the labor unions by supporting candidates pledged in advance to the support of necessary and wise ordinances, according with the foregoing principles, will advance the health conditions and material prosperity of the country; and the American Federation of Labor in this convention assembled recommends these principles to its affiliated national, State, district, and local bodies.

The foregoing resolutions seem to confirm the ideas I have endeavored to express as to injecting sanitation as a live issue in municipal politics, and you will recall that one effect of such injection would be a wider diffusion of sanitary knowledge among the working people, and a deeper impression of its importance among the more highly educated.

But there is more in these resolutions than the spread of sanitary knowledge. They express what seems to me to be a cardinal principle for guidance in practical measures to improve health conditions in the United States. They practically assert that the low, unsewered, unpaved, filthiest parts of our cities should receive the very first consideration in all plans for municipal improvements.

It should be the ambition of all those who take special interest in the health of the nation to bring about a slumless country. I have given expression to these views before, but they require repeated iteration. As stated in a former address, "there is no adequate reason why slums should exist anywhere, and by slums I mean places where through bad drainage, imperfect sewerage, inadequate air space, lack of pure water, and lack of sunlight, human beings are subject to disease and crime-inducing conditions."

Following this all sanitary administration would be much easier and more effective.

Now, in the elimination of slums, there are one or two principles involved, which should be carefully considered lest fatal mistakes be made. Such mistakes have been made, as may be seen in the reports of the commission on the housing problem in London. The right of the owner of the insanitary dwelling should be considered, and whether compensation should or should not be allowed him seems to be a matter dependent upon local considerations. But the rights of the tenants, however poor, must also be considered, and ordinarily it would seem wise to defer their ejectment until provision is made for their housing in quarters equal in size, no greater in rent, and as convenient in locality, as they have been occupying.

The bureau of which I have charge is now receiving, through the State Department, from the United States consuls abroad, and is collating the experiences and laws in foreign countries relating to these matters. The statement from one city contained a confession of mistake in that, while buildings are being put in sanitary condition respectable workmen are driven into localities foreign to their trades and among a foreign element, all of which is detrimental to their self-respect. This difficulty suggests the possibility of a coordination of effort between the municipalities and our wealthy philanthropists. The municipalities can well afford to pass ordinances for the destruction or reconstruction of insanitary dwellings, with a proviso for a possible delay of execution until proper quarters, as before indicated, are provided.

I would not undertake to say whether or not a plan of this character is applicable to a great city like New York, but with regard to other cities I believe it is. If municipal ownership of tenement houses is objectionable, then would be available the efforts of the milionaire philanthropist, who, not as a giver of charity, but as one willing to accept a very moderate return on his investment, would erect the necessary buildings.

I have said that the health of this nation might be considered under two heads, the exclusion of disease and the extinction of disease. There is another consideration worthy of attention, namely, the development of a healthy and robust individual organism. The elimination of the ordinary diseases and the development of a higher average of individual health and strength would practically mean life on a higher plane in all its features. It would mean a greater average of mental aptitude for work in the higher fields of human activity—in all the arts and sciences.

When thus we review the good results of sanitation, and survey the field and realize that improved conditions are within our reach, we certainly must feel a desire to hasten the day when they may be realized.

In dealing with my topic, The Health of the Nation, I have preferred to express these general ideas and principles, rather than to go into those details and statistics of disease and sanitary work which are narrated elsewhere in medical journals, reports of State and city boards of

health, and of the Public Health and Marine-Hospital Service.

Knowing that other speakers are to follow, whom we are all anxious to hear, I feel that I have fully occupied all the time due me, and, in closing, I wish to say that it is a rare pleasure and an opportunity greatly appreciated to meet and exchange ideas with the members of this society. I wish to thank your president for his kind invitation for this evening, and to thank you all heartily for your kind attention.

THE HEALTH OF THE PORT OF NEW YORK.[1]

BY ALVAH H. DOTY, M.D.,
OF NEW YORK;
HEALTH OFFICER OF THE PORT OF NEW YORK.

The health of the port of New York, which has been assigned to me as the title of a paper to be presented at this meeting can best be considered in connection with a description of the diseases which are dealt with at the New York Quarantine Station, and the methods employed to prevent their entrance into this country.

Quarantine officers, while expecting to deal with almost any form of infection, usually regard some one disease as the most constant visitor which comes under their observation. The character of this depends upon the ports with which the various quarantine stations are in frequent and direct communication. For instance, yellow fever, which has been almost continuously present in South American and Cuban ports, is looked upon as a special menace to this country, particularly the southern portion of it, where ports of entry have made unusual and extensive preparation for the detection and care of this disease. Although New York and its vicinity have little or nothing to fear from yellow fever, it is necessary to bear in mind that a case in its early stage, or in a mild or ambulant form, if allowed to pass the New York Quarantine Station unrecognized, may reach a Southern town and possibly cause an outbreak of this disease. For this reason great care is taken at this port to detect the presence of yellow fever on incoming vessels. It may be truthfully said that in the past no disease which has visited the United States has caused such consternation and great loss of life or has been responsible for such stringent rules and regulations on the part of health authorities as yellow fever. Not only just but unjust means have been employed to prevent its extension. This has been carried to such an extent during the presence of epidemics in the South that the commerce of that section has been at times practically paralyzed. The enforcement of drastic measures was largely due to the belief that yellow fever was transmitted by personal contact with the patient, by discharges, the clothing and effects of the sick, cargoes of vessels, merchandise, etc.—even iron rails have been regarded as a medium of infection and have been subjected to disinfection. To-day we know that such regulations are unnecessary, as it has been conclusively proven by the most careful and thorough investigations that yellow fever is conveyed from one person to another by the mosquito. It is but proper to say that there are still some who believe that there may be other means of transmitting the disease. However, there is at present no reasonable proof of it, and for practical purposes it may be regarded as safe to assume that the mosquito is the only means by which the disease is conveyed. The importance of this knowledge cannot be overestimated, inasmuch as it places in our hands means by which formidable and dangerous epidemics of yellow fever can be prevented. The means to which I refer consist principally in confining the patient sick with yellow fever in an apartment completely protected by screens to prevent the entrance or exit of mosquitoes. This measure of protection is easily carried out, and in order to be eminently successful it is required that cases of yellow fever shall be very early detected. Aside from the use of agents such as sulphur dioxide in apartments to destroy the *Stegomyia fasciata*, the variety of mosquito which transmits yellow fever, disinfection is now regarded as unnecessary. Exhaustive experiments which were made at the New York Quarantine Station conclusively proved that the mosquito will not live in closed trunks, bags and other receptacles more than twenty-four or thirty hours; therefore the disinfection of baggage which has been in transit more than two days would seem to be uncalled for. This not only simplifies the methods employed in the treatment of outbreaks of yellow fever, but relieves commerce of the long delays and great expense which general disinfection has heretofore involved. No one welcomes this change so earnestly as the quarantine officer, inasmuch as the problem of securing a thorough and safe disinfection without unnecessary delay to vessels and their passengers is now practically eliminated.

Another factor which has recently made considerable change in quarantine methods, particularly at the Port of New York, are the means employed to prevent the entrance of bubonic plague into this country. The appearance of this disease in European and South American ports during the past five or six years has caused considerable apprehension, as it was believed that these outbreaks would be followed by results similar to those reported from India, where the mortality from this disease is very great. This anxiety was largely due to the meager knowledge heretofore possessed of the character and habits of this disease. Furthermore modern methods of sanitation are not in force in India, and the sanitary authorities not only do not receive the support of the people in efforts to enforce proper regulations, but have their opposition instead. The people there are extremely poor and ignorant, and are herded together in great numbers, thus

[1] Read before the New York County Medical Association, at the New York Academy of Medicine, New York, February 16, 1905.

giving any infectious disease every opportunity to extend. In Santos and Rio Janeiro, where outbreaks of plague assumed an epidemic form, and where sanitary regulations, although fairly good, are far inferior to our own, the disease was soon brought under control. In efforts to detect the presence of this disease, it is necessary to bear in mind that it may appear either as the "bubonic" form, which is associated with enlargement of the superficial glands, particularly the inguinal and auxiliary ones, or the "pulmonary" form, in which the symptoms are principally referable to the lungs. Aside from the transmission of the disease by personal contagion, it is necessary that proper consideration be given to the rat, which has been regarded as a common means of conveying the disease from one person to another. Although there is no doubt as to the truth of this, there is also no doubt that the importance of the rat in the transmission of the bubonic plague is overestimated. In addition to vermin we have yet to consider the probability of the disease being conveyed by insects. During the past four or five years a number of cases of bubonic plague have been removed at the New York Quarantine from vessels arriving from South American and Indian ports. In no instance did secondary cases occur among those who were in contact with the patient, either on shipboard or on Swinburne Island. This tends to show that bubonic plague, when modern sanitary regulations are in force, is not easily transmitted. The pulmonary form, which is very fatal, is not usually seen away from India.

In vessels arriving from cholera ports great care is taken to detect the disease in its various manifestations. The ship's log is carefully examined, and all cases recorded as heart disease, diarrhea, dysentery, etc., which may either have died or recovered in transit to this country, are regarded as suspicious, and as a rule justify the detention of the crew, besides a thorough disinfection of the vessel. Fortunately, vessels coming from cholera and plague infected ports do not as a rule carry passengers.

Typhus fever and smallpox, which complete the list of five diseases that are specially subject to quarantine regulation, are also carefully watched for, particularly if there is any reason to believe that these diseases exist at the ports of departure.

In order to insure the detention of infectious diseases in the stage of invasion all persons arriving at this port on foreign vessels having fever as indicated by the thermometer, and which cannot be satisfactorily accounted for, are subject to removal to Swinburne Island for observation. In this manner many cases of infectious disease have been prevented from reaching the city.

Success on the part of quarantine officials in the detection of infectious disease and the treatment of passengers, crews and vessels depends upon the character of inspection performed, and an intimate knowledge of the principles which govern modern and practical sanitation, which it can be said is now placed on a scientific basis. We are therefore dealing mainly with facts and not theories. Many of the latter which have long held sway have been repudiated by practical sanitarians.

I am confident that the clothing worn by well persons, textile fabrics, other than those used about the sick, merchandise, cargoes of vessels, etc., rarely act as a medium of infection. I am convinced of this as a result of careful investigation and practical experience. The theory that this material transmits disease undoubtedly receives its chief support from the fact that it is the only plausible explanation of the presence in a community of a case of infectious disease, the origin of which cannot be satisfactorily accounted for. While this theory is apparently reasonable and easily accepted, it is associated with great danger to the public, inasmuch as it discourages a careful and thorough inspection to ascertain the real origin of the outbreak, which I believe is frequently due to the presence of mild, ambulant or unrecognized cases. This statement I am quite sure will be indorsed by many who have had long practical experience with infectious disease. In support of the statement which I have just made, I will cite the following instances from my own experience: During the prevalence of typhus fever in New York City in 1893, a thorough investigation was made as to the origin of each case brought to the notice of the Health Department. The investigation frequently covered over a period of a week or more, and in the great majority of cases the most satisfactory and conclusive proof was obtained that the disease was contracted by personal contagion and not through the medium of clothing, etc. Typhus fever also existed in New York during the previous year, 1892. During the period referred to (1892-1893) there were 714 cases of typhus fever, and 814 cases of smallpox under the observation of the Health Department. The Bureau of infectious diseases at the time referred to consisted of from sixty to seventy-five officers and employees, including diagnosticians, vaccinators, ambulance drivers, etc., all of whom were more or less constantly in direct contact with the above cases and their apartments. It was frequently necessary for the diagnosticians to undress the patient in order to make a thorough examination. Ambulance drivers and other attendants carried the patients from their apartments to the ambulance, and afterward from it to the hospital wards. Gowns were not used, and the officers and employees referred to went freely to and from their homes to the seat of infection; yet in no instance during this entire period of almost two years was either typhus fever or smallpox transmitted to the families of these men, or to the other occupants of houses in which they lived. Fourteen of the employees contracted typhus fever, and seven died. The fact that the fourteen men referred to

were promptly removed to the hospital on the appearance of the first symptoms of the disease will, I believe, explain why members of their families and others were not infected, inasmuch as there is good reason to believe that typhus fever does not usually transmit infection during its very early stage. If infection were commonly communicated by the clothing worn by well persons, it seems reasonable to infer that it would have been demonstrated in the instance just referred to.

During the past six or seven years a number of cases of bubonic plague have been brought to this station by vessels coming from South American and Indian ports. In all but one instance the disease was in a mild or ambulant form, which under the ordinary inspection of passengers would have passed unrecognized. The persons affected were able to stand erect on the deck of the vessel, answer all questions, and presented no evidence of the disease. However, when their clothing was removed and a glandular inspection made, the disease was recognized and the diagnosis confirmed by bacteriological examination; moreover, at no time during their detention at Swinburne Island did their general condition or appearance indicate that they were affected with the plague. The presence of a case of this kind in a crowded sailor's boarding house in a large city would be likely to transmit the disease, and inasmuch as no record of a previous case was forthcoming, the infection would probably be attributed to clothing or cargo. Cases of the mild or ambulant form of yellow fever, or in the early stage of this disease, have been detected at this station by the use of the clinical thermometer, when the ordinary methods of examination would probably have allowed them to pass unrecognized.

The opening of the school season largely increases the number of cases of diphtheria, scarlatina and measles, and it is the belief of many that they are transmitted by the clothing of well children who are members of families where infectious diseases exist. That this belief has not been well founded has been clearly demonstrated by the Health Department of New York and other cities. Inspectors connected with the school corps are constantly finding in the schools mild and ambulant cases of the above diseases, which have not been recognized and which are unquestionably principally responsible for the increased number of cases of infectious diseases which follow the opening of schools.

What I have said regarding the necessity of a careful inspection in outbreaks of infectious diseases applies in the most forcible way to quarantine inspection, inasmuch as after the release of a ship no further opportunity for examination is, as a rule, afforded.

In referring particularly to this part of the subject, it is not my intention to discourage the use of every reasonable and sensible measure necessary to prevent the extension of infectious disease, but rather to indicate in what direction our energies should be directed for this important purpose. I am certain that the full acceptance of the theory that the clothing worn by well persons, merchandise, cargoes, vessels, etc., commonly transmit infectious disease militates against the careful inspection, which I believe is imperative in order to discover the true origin of outbreaks of infectious disease and to control them promptly and successfully.

The inspection of passengers and crews at the New York Quarantine Station is of the most rigid character. Neither the bill of health, the statement of the ship's captain, or surgeon, or of any one else is taken in lieu of a careful personal examination when called for by the regulations of the department. The use of carefully registered thermometers constitutes a part of the inspection of passengers and crews coming from infected districts. If plague is suspected all on board are subjected to a glandular examination, and special attention is given to the presence of any pulmonary affection. The use of the thermometer is also included in the inspection of plague suspects. A passenger or member of the crew having an elevation of temperature, which cannot be satisfactorily accounted for, is subject to removal to Swinburne Island for observation. Those who have been in contact with infectious disease on shipboard are also held for observation. So-called cases of malarial fever, particularly from Southern ports, are detained until an examination of the blood shows the presence of the malarial plasmodium, or until the disease has been shown not to be yellow fever. The clothing of the crew and passengers, bedding and forecastle, etc., of vessels coming from plague of cholera ports, which have been long in transit, are on their arrival here thoroughly disinfected; not on the assumption that this material may have conveyed infection from the ports of departure, but on the ground that in the long voyage there may have been cases of infectious disease which have recovered and are not properly reported.

When disinfection is necessary steam at a temperature of 230° F. with an exposure of fifteen minutes is used for the treatment of clothing, bedding, and other textile fabrics, inasmuch as it is the only agent which can be depended upon to thoroughly penetrate the material referred to. When furs, silks, satins, and other delicate fabrics, and also leather goods, etc., which are destroyed or injured by steam are to be disinfected, formaldehyde gas is employed. In these instances, however, every article is carefully hung up and spread out in order that all surfaces shall be exposed to the gas. Formaldehyde is also used in the disinfection of saloon apartments, which contain fine fabrics, gilding, etc. Hot water and soap, sulphur dioxide, bichloride of mercury and carbolic acid are variously used in the cleansing and disinfecting of the ship's forecastle and other apartments after the removal of all textile fabrics, merchandise, etc.

However, the thorough use of soap and water by scrubbing, followed by the generation of sul-

phur dioxide, or formaldehyde gas in the closed apartment, is as a rule all that is required to insure safety against infection. I am sure that the value of soap and water in the treatment of filthy and greasy woodwork, which is almost always found in the ship's forecastle, and commonly in schoolrooms, etc., is not properly appreciated. Under these conditions, the use of a solution of bichloride of mercury or carbolic acid certainly does not cleanse the woodwork nor can it be depended upon to insure disinfection.

The disinfecting steamer, James W. Wadsworth, which is always under steam at the New York Quarantine Station, contains all the apparatus which is used in modern disinfection. In this way the treatment of vessels is properly carried out with very little detention. After the removal of a case of infectious disease, and also those that have been exposed to it, as in smallpox, or where all passengers and crews are subject to removal, as in the presence of plague, cholera or typhus fever, thorough disinfection of the vessel is performed, and the latter promptly released. The further detention of a vessel is not only unnecessary, but it entails a serious expense to the owners. The detention of a case of infectious disease on shipboard is in violation of one of the cardinal principles of marine sanitation, inasmuch as proper segregation and quarantine cannot be properly carried out, and the infection is apt to be further extended. Besides, under these circumstances, the time for the release of the vessel cannot be determined.

In transatlantic mail steamships, the deposition of the captain and surgeon that the saloon passengers and crew of the vessel are well is under ordinary conditions and where no epidemic or infectious disease is prevalent at the port of departure, accepted in lieu of an examination. However, under no conditions are steerage passengers exempt from examination. Experience has shown that this procedure is safe. Furthermore, the examination of two or three hundred saloon passengers and two to six hundred members of a crew, who are constantly needed in the movement of the vessel, would involve a detention, which is not under ordinary circumstances justified.

If success has attended the efforts of the Health Officers' Department of the State of New York, to prevent the entrance of infectious disease into the United States, it has been due to a strict observance of the principles which govern modern sanitation.

Identification of the Body of Paul Jones.—According to the newspaper reports the identification of the body of Paul Jones, recently exhumed in Paris, is complete in every particular. Found where it was expected, the body, remarkably well preserved, shows marked resemblance to the extant portraits and busts of the Admiral, and corresponds to the recorded measurements. As a finishing touch to clinch the identification, an autopsy "showed distinct proofs of the disease from which the Admiral is known to have died."

WHAT THE STATE OF NEW YORK IS DOING FOR THE INSANE.[1]

BY FREDERICK PETERSON, M.D.,
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PROFESSOR OF CLINICAL PSYCHIATRY IN COLUMBIA UNIVERSITY; EX-PRESIDENT OF THE STATE COMMISSION IN LUNACY.

On the invitation of your President I have the honor to address you upon the subject of "What the State of New York is Doing for the Insane and for the Advancement of the Science of Medicine."

Having left the busy ranks of the medical profession for a few years, to be one of the Commissioners in Lunacy of the State, I feel that I have returned to my work with some news to tell of a medical domain outside of our common experiences. The isolated position of many State hospitals as well as private retreats, and the fact that the State in taking charge of the vast body of the insane, supplies its own physicians and that these physicians, by reason of their isolation and preoccupation with institutional duties, have not come into such active relations with their profession as their more fortunate brothers in general practice,—all of these features have made the asylum system rather foreign country to the medical profession. I feel that I have been abroad and should tell you some of the matters observed in my travels.

In the first place, there are between 26,000 and 27,000 insane in the State's public and private asylums. These institutions now number 30. The annual increase in the number of the insane under State care is between 700 and 900, almost enough to suggest the construction of a new hospital each year. Every asylum is greatly overcrowded. The movement of population is rather rapid, about 6,000, in rough figures, being admitted to the hospitals yearly, and 5,000 discharged. The Lunacy Commission, consisting of one medical man, one lawyer and one layman, have the entire supervision of all of these institutions, as well as the direction of the expenditure of some $5,000,000 yearly. I would say here—to forestall commentaries—that no member of the Lunacy Commission ever saw this money or handled it. It remains in the State Treasury until disbursed by the Comptroller, upon estimates made by the various hospitals subject to the approval of the Lunacy Commission.

The chief duties of the Lunacy Commission are to visit all of the 30 public and private hospitals twice yearly, or oftener if necessary, to examine into their needs in the way of improvements, repairs, etc., to look over and revise the thousands of items of proposed expenditures in the estimates, to prepare plans for new construction, and to look to the welfare of the patients. In addition to this, the medical commissioner must see and examine all of the new patients admitted each year. With such large administrative duties, you may be sure that in the work of the Commission medical questions, as a rule, receive

[1] Read before the Medical Association of Greater New York, January, 1905.

but small attention, and then only when forced upon the Commission by the one medical member. The innumerable hours of joint deliberation by the Lunacy Commission are devoted almost wholly to matters economic, mercantile and administrative.

"The time has come," the walrus said,
"To talk of many things:
Of shoes—and ships—and sealing wax—
Of cabbages—and Kings—
And why the sea is boiling hot—
And whether pigs have wings."

Having accomplished what I could in a medical way in the service, I was very glad to give up these arduous duties three years before the expiration of my term of office, in order to devote myself to more congenial, as well as more lucrative work. But my experience as a commissioner made me familiar with the nature of the work required of a superintendent of a hospital, which was exactly paralleled by mine. It is not the fault of a medical man who becomes a hospital superintendent that his labors should tend to become more and more administrative, and less and less professional. It is the fault of the system, and the physician who undertakes this work simply falls a victim to the institutional Juggernaut. The asylums are large aggregations of people, sometimes 3,000 or 4,000, and each aggregation presents the multiplicity of detail that may be observed in any village of like size. The medical superintendent is the Mayor of the town and has to do with its commerce, its agriculture, its bookkeeping, its sanitation, its water-supply, lighting, heating, road-making, street-cleaning, laundry-work, as well as the feeding, clothing and care of all the citizens. He has under him efficient aids in the persons of steward, farmer, a corps of physicians, and a great staff of other employees. The assisting physicians take the superintendent as their model, and while they are brought more closely into contact with the patients and the medical work, the system is prone to make them also more and more administrative officers, and less and less medical in their tendencies. Having once been an assistant physician for some years in a large asylum I have a fellow-feeling for these young men, who are often isolated from professional life by the distance of the hospitals from medical centers. They find themselves confronted with innumerable duties of a non-medical character. They have placed before them an enormous mass of medical material, but they find the problems of psychiatry most abstruse and difficult. They fall into a dull and dispiriting routine, which is only enlivened by the certainty of the quarterly salary. Many an eager medical mind, many an ambitious spirit, has been crushed by these conditions.

These facts are true of a hundred asylums in this country, and of a hundred or more in Great Britain. Only the other day a *Lancet* leader dealt earnestly with this subject in connection with the London County asylums.

But I want to say on behalf of New York, that her efforts to change this state of affairs have placed her in the lead of all the American and British communities. There are no better public hospitals for the insane than ours, and there are no others where at the present time more purely scientific and medical work is being done.

To Dr. Carlos F. Macdonald, one of my predecessors in the office of Lunacy Commissioner, the credit is due of having established the first central laboratory in this country for the study of psychiatric problems. While there have been changes in the personnel of this laboratory, excellent work has been done in it since its first inception. During the past three years, under the direction of Dr. Adolf Meyer, a great deal of attention has been paid to the very matter just referred to, of stimulating new medical interest among the one hundred and thirty physicians constituting the staffs of the fourteen State hospitals. This central Pathological Institute occupies a building on Ward's Island adjacent to one of the largest of the hospitals there. There are some 4,000 patients on the Island. In addition to the Director, there is a staff of workers in pathology, chemistry, psychology, clinical psychiatry and the like. While research work is an important function of the Institute, the instruction of the physicians in the State hospitals was felt to be of almost equal consequence. During the first year of Dr. Meyer's incumbency all of the superintendents of the fourteen State hospitals gathered at Ward's Island for a brief course of lectures and demonstrations which should serve as an index of the character of the medical and scientific work to be carried out in each hospital. During the same year, 65 of the assistant physicians, from all parts of the State, were sent to the Institute for a longer course of instruction in clinical methods, and in neuropathology. Subsequently 16 physicians from various hospitals took three-months' courses at the Institute, while 25 others took shorter courses. In addition to this, Dr. Meyer and his assistants have spent some time at each asylum, working over clinical and pathological material with the staff. Particular stress has been laid upon the most careful study of the clinical side of all cases admitted. In my time of asylum service, histories appeared to be kept chiefly as evidence of insanity, to be used in case of habeas corpus proceedings. The elaborate histories now taken not only present a clear picture of the mental condition of the patients, but record so completely every physical abnormality that they have already become a treasure-house of important data for reference. It is safe to say that there are over 10,000 histories of patients in the books better recorded than any ever before put down in asylum annals. The accumulation of such material must become of incalculable value to investigators in psychiatry; but quite as important is the fact that the very work of their preparation is an education to the young men performing the

services, stimulating their understanding, improving their powers of observation, and sharpening their scientific judgment. It makes them better physicians, and in so doing directly profits the patients under their care, who must inevitably reap the benefits of better diagnosis and more expert treatment.

The practice of having staff meetings once or twice weekly, for the discussion of conditions of patients and for the presentation of new and interesting data in the domain of medicine, has become general. Each hospital has in effect its own medical society. The State has been liberal in allowance for medical books and scientific periodicals in all languages, so that a well-equipped working medical library exists in each institution. Every hospital desiring it, has been thoroughly fitted out with its own clinicopathological laboratory and accessories with all sorts of instruments of precision, with fine operating-rooms, X-ray apparatus, electric machines, hydrotherapeutic apartments, and the like. Nothing has been spared to make each institution equal in facilities and appliances to any general hospital. Where asylums are located sufficiently near to large towns or cities, consulting boards of medical men, active in various specialties, have been secured in order to bring the members of the staffs into relation with all lines of medical progress. These boards of consultants have not been merely honorary associates in the work, but have proved singularly interested and efficient and often enthusiastic. The hospitals have been thrown open to recent graduates, who should take positions therein similar to those of internes in general hospitals. With their large population and laboratory facilities, these institutions offer great opportunities to ambitious young men unable to secure the more coveted positions in general hospitals. The result of all this has been to make each asylum a nucleus for a large amount of genuine clinicopathological work, despite the difficulties that formerly beset the scientific path of the assistant physician, and in time the effects will become more and more apparent. I firmly believe that as time goes on, the superintendent of a large asylum in this State will be first of all a medical and scientific man, and only secondarily an administrative officer. He will find means to supervise the machinery of his hospital through efficient heads in the various departments under his control, without sacrificing his professional ideals to matters wholly subsidiary.

The asylums of New York were among the first institutions for the insane in this country to establish training schools for nurses. This was begun twenty years ago at Buffalo, and since then every hospital has had its training school in which instruction in all departments of nursing is given as in general hospitals. Many of their graduates are now doing general nursing in all parts of the State, though, of course, the majority remain in the hospitals. Considerably over a thousand nurses have been graduated.

There is a woman physician upon the staff of each of the State hospitals, as well as a salaried dentist and ophthalmologist.

Patients are always sent for by the State hospitals when the request is made, nurses of the proper sex, and often a doctor too being delegated for this purpose. There is an ambulance service at the foot of East One Hundred and Sixteenth Street, which might be more used if the physicians of New York were more familiar with its existence. We have the habit of sending patients to Bellevue for examination, whence they are transferred to various asylums and retreats. But this is not necessary. The commitment papers may be made out by any two examiners in lunacy in the city, and the Ward's Island hospitals notified. Then the ambulance and nurses would be despatched for the patient.

In something like seven years the law requires the State to give up Ward's Island to the city, and inside of that time all the insane will need to be removed to new country asylums, whose sites ought to be selected and purchased at once. There is no doubt that New York City will refuse to extend the lease of the Island, for she needs it for her own purposes.

Having this fact before us, that New York City would before long have no nearby hospital for her insane, and believing in the policy of speedy access to hospital facilities, we had a bill passed last year appropriating $300,000 for the construction of a reception hospital for the insane on Manhattan Island in the center of population. The State will build and permanently maintain this psychopathic hospital, provided the city will furnish the plot of ground required. The only existing reception hospitals of this kind in the United States are at Albany, N. Y., and Ann Arbor, Mich. But Boston is just about to construct a psychopathic hospital in the heart of the city. The plan of the State of New York is to have such a hospital on Manhattan Island, another in the Borough of Brooklyn, and one in connection with each of the State hospitals in or near large towns throughout the State. By means of these adjuncts to the existing system, speedy access to hospitals, and more effective methods of treatment of the acute and curable cases will be secured.

In this connection, I would also call attention to the new law recently enacted, relating to emergency commitments (Chapter 146, Laws, 1903). Any State hospital is authorized, upon the certification of two medical examiners in lunacy and of the petitioner, to receive immediately any emergency case of insanity, and the judge's approval need not be obtained for five days.

There are a number of other evidences of progress in the care of the insane in the State, which have contributed to place our institutions among the best in the land. The following are a few of the improvements that have taken place in the last fifteen years:

Restraint by means of straps, straight-jackets, cribs, etc., has been almost wholly abandoned, and where used at all is employed only as a last resort, and its use is safe-guarded by signed medical orders kept on file, copies of which are sent to the Lunacy Commission. The same is true of solitary confinement of the disturbed classes.

Women nurses are employed in many male wards. Some wards in each institution have unbarred windows and unlocked doors (the open-door system).

Occupations for the patients have been multiplied and the labor of the able-bodied in the buildings and in the shops, fields, gardens and barns, has come to have a great monetary value.

The wards and rooms have been made more and more attractive by furnishings, pictures, birds, plants, libraries, games and musical instruments. In fact the criticism has been made at times that the hospitals too closely resemble luxurious hotels. But as all this has been done at a cost of forty-seven cents per day per patient, even in the most expensive year (that of the coal strike), such criticism is on the whole rather complimentary.

Religious services are held regularly by salaried chaplains, and there are all sorts of indoor and outdoor sports, entertainments and recreations.

The segregation of tuberculous patients has been carried on for some years in tents, a system first begun by Dr. A. E. Macdonald, late superintendent of one of the Ward's Island hospitals and quite recently several special tuberculosis hospitals have been constructed, the plans of which are fully described and illustrated in the last Annual Report of the Lunacy Commission.

I should not close these remarks without stating that almost the whole of the progress made in the means and methods of caring for the insane, has been due to the initiative of the superintendents themselves, and that suggestions of improvements from other sources have always been favorably received and zealously abetted. The reforms have mostly come from within, and in so far as they have been successfully carried out, are an index of the triumph of their spirit over the deadening effects of institutionalism.

ABDOMINAL NEPHRECTOMY, WITH ILLUSTRATIVE CASES.[1]

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I DESIRE to call your attention to the surgical conditions which not only demand the removal of the kidney but in which existing manifestations indicate that the preferable route for its removal is through the abdomen. It is to be understood at the outset that the operation of nephrectomy is to be the last resort in the treatment of the surgical affections of the kidney.

In none of the cases, to be presented, was the kidney the site of a neoplasm. No one would for a moment question the necessity of nephrectomy where the kidney is affected with sarcoma or carcinoma.

In all of the patients, whose histories I will narrate, there were present, however, pathological conditions quite as incurable. The kidney had, in each instance, ceased to functionate as an excretory organ, and was in a state of advanced destruction.

There is a great divergence of opinion in the surgical world as to the dangers attending abdominal nephrectomy. In the lumbar operation the peritoneal cavity is, as a rule, not entered. While I am ready to admit that where one can avoid opening the abdomen this should be done, I wish likewise to insist that with proper precaution there is no particular danger involved by this step. The peritoneal cavity can be easily safeguarded and I feel that when this is protected there is very little danger of provoking peritoneal infection.

Two conditions are encountered which can be more easily and I believe more safely met by the abdominal operation. The first depends upon the size of the mass. This may be so great that the limited space between the ribs and the ilium, makes it a matter of great difficulty to remove even large cystic tumors through the loin, not to mention the solid tumors of great size. But to me the second consideration is of greater significance, namely the presence of extensive adhesions. It is impossible to free these satisfactorily through the lumbar incision. One is obliged to do so much of the work in the dark. Therein lies the great advantage of the abdominal route. In several of the cases, which I will report, you will note the extensive adhesions to the intestines and also to large vessels. Under the most favorable conditions with everything in plain view, laceration of large vascular channels and of intestines may not always be avoided; but when such mischief is done there is furthermore the great advantage of being able to promptly control the bleeding and to repair the damage to the viscera. If the surgeon is able to see what he is doing, his work is greatly simplified and done with greater safety and dispatch.

Moreover, while there are other ways of determining the presence of both kidneys, one can always demonstrate their existence through the open abdomen. Catheterization of the ureters is a procedure which few men, comparatively speaking, are able satisfactorily to perform. The segregation of the urine by means of the Harris instrument is easily done, but there is a question as to whether it is absolutely reliable. One does not feel that a second incision through the back over the supposed site of the opposite kidney is always quite justifiable, merely to determine its presence. Through the abdominal wound one is able to settle this question. I have never felt that there is as much shock attending opera-

[1] Read at the Semi-Annual Meeting of the Onondaga County Medical Society, December, 1904.

tions in the upper part of the abdomen as in the lower. The establishment of drainage through the loin I look upon as an essential feature of abdominal nephrectomy. Permit me without further preamble to relate the histories of the cases to be presented for your consideration:

Case I. Hydronephrosis, due to Abnormal Origin of Ureter; Nephrolithiasis; Nephrectomy; Recovery.—Miss G., aged twenty-eight years; unmarried; seen in consultation with Dr. Hawley May 2, 1902. Her mother is insane. There is a negative family history otherwise. Four years prior to my seeing her, patient had had an attack of pain on the right side of the abdomen in the region of the liver which was attended with jaundice. Dr. Hawley attended her at this time. For fully three if not four years, prior to my examination, she had been aware of the presence of swelling on the left side of her abdomen. She stated that at times it was much larger than at others. In April, 1901, while she was a kindergarten teacher, she strained herself in lifting and for three days passed bloody urine. On the first day the urine was very dark but during the succeeding days it grew lighter until its color became normal. She had no further attack of hematuria. About once a week for a long time she had had attacks of severe pain on the left side which would last, perhaps, two hours. On the day preceding our examination it was more severe than usual, compelling her to empty her bladder every two hours during the day and two or three times during the night. This was never associated with any pain. Her weight, which had never been great, was 98 pounds. Her general health, however, was good. She stated that when first she noticed the growth it was located in the left iliac fossa. At the time of our examination the left half of the abdomen was entirely occupied by a tumor which reached upward to the ribs and downward into the pelvis. It extended three inches to the right of the umbilicus, was tense, elastic and apparently fluctuated. It was not possible to make a vaginal examination, and per rectum the digital examination was unsatisfactory. The mass could be moved laterally but it was too large to move far upward. The urine was found to be yellow, slightly turbid; alkaline; sp. gr. 1.014; containing neither albumin nor sugar; earthy phosphates slightly increased, total 8 per cent.; microscopically a large number of triple phosphates, some red blood cells, pus cells and both renal and bladder epithelium.

On May 29, 1902, after making the necessary preparations, Dr. Hawley and myself operated upon her at St. Joseph's Hospital. Under the anesthetic the mass was more mobile but was much too large to carry up out of the abdomen. There was no doubt as to the tumor being a kidney, but because of its size and location it was decided to do a transperitoneal operation.

As soon as the abdomen was opened I carried my hand to the opposite side of the abdomen and determined the presence of the other kidney. This was of normal size and shape. After cutting through the peritoneum the enlarged kidney was easily brought out. It was 10 inches long and 6 inches in its transverse diameter. The ureter and renal vessels were clamped and the kidney was cut away. The stump of the ureter was treated with carbolic acid, inverted and sutured. The vessels were ligated. A small incision was made in the loin for drainage. The peritoneum was replaced, secured by three or four retention sutures; the abdominal wound closed without drainage. Six hours after operation patient had a pulse of 90 and temperature of 99° F. There were no disturbing manifestations in the subsequent course of the case. She has continued to enjoy perfect health.

You will note, on examining the specimen, the enormous dilatation of the pelvis of the kidney, as well as of the organ itself which presents a thin shell with but little of the normal substance remaining. The ureter was not obstructed, but was inserted into one end of the pelvis and lying close to it. The lining of the cavity of the kidney presented several hundred very small, pale-brown, smooth faceted calculi. Dr. Steensland, who carefully examined the specimen, makes the following diagnosis: Chronic hydronephrosis resulting from the fact that the ureter arises from the pelvis of the kidney at an acute angle; nephrolithiasis.

Case II. Hydropyonephrosis, due to Calculous Obstruction and Subsequent Traumatism; Nephrectomy; Recovery.—Mr. B. was brought to my office July 2, 1901, by Dr. Cook. He was thirty-eight years of age; married; was a constable in the municipal court. He had always enjoyed good health. On June 5, 1901, he was riding in a trolley car which was overturned. He was thrown under a seat and a heavy man fell upon him. After the man was lifted off, the patient found himself able to get up. He walked out of the car and even assisted others who were injured. He was driven home. There were some abrasions upon the body. He complained soon after of pain in the right side of his back, which extended down the abdomen and into the right thigh. On urinating he suffered pain over the anterior part of the abdomen on the right side. Blood was found in the urine voided in the evening some six hours after the receipt of the injury. The man was confined to his home upward of three weeks and on getting around felt as if there was a contricting band about his abdomen. At the time of my examination he said he felt as if there was a weight pressing on his left side. He complained rather more of left- than right-sided pain. At this examination, about four weeks after the receipt of the injury, the urine voided at my office was turbid, neutral, contained a large amount of albumin, even in the filtered specimen, and, microscopically, numerous blood corpuscles, some bladder epithelia and an occasional oxalate of lime crystal.

I did not see the patient again until April 23, 1904. At that time he stated that he had had persistent urinary disturbance since the receipt of the injury. He urinated frequently during the day and night but without much distress. In the meantime his wife, who had been sick a long time, died. He had worried a great deal because of her long sickness and had worn himself out in his devotion to her. During this period he had been under the observation of Dr. Heffron.

Examination showed a large tumor in the abdomen on the right side extending down to the level of the umbilicus and reaching over to the middle line of the body. It was tense and fluctuated but was not particularly tender. It was fairly movable. A specimen of urine voided at three o'clock in the morning, was found to be straw-colored, very turbid, alkaline, sp. gr. 1.010, contained albumin, no sugar, earthy phosphates normal, total eight per cent. Ten slides were examined for tubercle bacilli with negative results. These slides were made from the sediment centrifugated from a pint of urine which he had passed. The pint contained about three drams of mucopus. Microscopical examination showed a field full of pus and red blood cells.

On May 4, 1904, I operated upon him at St. Joseph's Hospital, assisted by the hospital internes and in the presence of Dr. Heffron. His general condition was very satisfactory. An anterior incision was made along the outer border of the rectus extending from the ribs to the level of the umbilicus. The presence of the left kidney was determined by palpation through the abdominal wound. The diseased kidney was found to be adherent to the large intestines. The adhesions were so firm and the kidney was so disorganized that in separating the tumor the sac ruptured. The adhesions were very extensive. The kidney was freed with great difficulty. A dozen or fifteen vessels required ligation. The peritoneal cavity was protected with gauze pads, so that despite the escape of a quantity of purulent discharge there was no contamination. The ureter was cauterized with carbolic acid. Posterior drainage was established through an incision in the loin; gauze was used for drainage. The abdominal wound was closed with catgut in separate layers; first the peritoneum, then the muscle, then the aponeurosis, and finally the skin, burying the sutures throughout. The patient bore the operation very well.

Upon section of the kidney, its center was found to be occupied by a stone of the shape of a butterfly, its transverse diameter being $2^1/_2$ inches. It presents a projection which dipped down into the ureter. At no time after his operation did the patient have any rise of temperature or any abdominal disturbance. The gauze tape was gradually withdrawn. However, there was for a time a little purulent discharge and it was decided, two weeks after the operation, to introduce a drainage tube instead of the gauze. The patient remained at the hospital for four weeks. The sinus healed rather slowly, continuing about ten weeks after operation. The man is now in perfect health and has no discomfort whatsoever.

The specimen which I show you is five inches long and $2^1/_2$ inches in its transverse diameter. At points the kidney substance is much thickened, at others friable. The perinephric tissue is very adherent to it. Dr. Steensland makes the diagnosis of a calculous hydronephrosis which became, later, as the result of a subsequent infection, a hydropyonephrosis.

Case III. Enormous Hydropyonephrosis due to Acute Insertion of the Ureter; Nephrectomy; Recovery.—Mr. M., aged thirty-eight years; married; had been superintendent of construction of the Boston Tunnel for two or three years. For a year he had worked in compressed-air underground but during the last year worked above ground. He had been a moderate drinker; denied ever having had any venereal disease. I saw him April 1, 1904. He stated that some six or eight weeks before he had been seized with pain in the right upper quadrant of the abdomen. Soon after it began to increase in size especially at this point. He had been under the care of two physicians who tapped him first in the middle line of the abdomen but finding no fluid, subsequently entered the trocar into the right side of the abdomen above the level of the umbilicus and drew off $4^5/_8$ quarts of a dark-colored fluid. At this time he was at the Hospital of the Good Shepherd. There was gradual reaccumulation of the fluid. At the time of my examination, April 4, I found a well-defined cystic tumor which reached below the level of the umbilicus and was quite fixed and immovable. The specimen of urine excreted at that time was straw-colored, very turbid, sharply acid, sp. gr. 1.020, contained no sugar but a large percentage of albumin. The earthy phosphates were normal, total 10 per cent. The turbidity of the urine was due to pus, which was evident macroscopically as well as microscopically. A second specimen of urine presented the same characteristics.

The patient entered St. Joseph's Hospital, where Dr. Elsner saw him with me. The diagnosis of a large hydropyonephrosis was made.

On April 7, 1904, assisted by Dr. Coon, and in the presence of Dr. Elsner, I opened the abdomen through the right semilunar line, making an incision six inches in length. By means of an aspirator we withdrew four quarts of purulent fluid before the tumor was lax enough to permit of its separation. The sac was very adherent to the intestine. The adhesions were very cautiously separated. The bleeding was quite free, about fifty vessels requiring ligation. The peritoneum was very adherent. The pedicle was finally exposed and the sac cut away. Everything was carefully cleaned with saline irrigation. Gauze drainage was established through the loin. Operation occupied about two hours. The abdominal wound was closed with catgut in separate layers, all sutures being buried. Six

hours after completion of operation patient was in good condition and 3½ ounces of urine were withdrawn by catheter. During the twenty-four hours succeeding the operation 24 ounces of urine were excreted. On the third day the temperature rose to 103° F., but gradually subsided and returned to normal at the end of a week. His pulse was of good character throughout. There was some suppuration along the line of incision and quite a free discharge of pus from the loin; a rubber drainage tube was substituted for the gauze. The discharge was foul in character and antiseptic irrigation through the drainage tube was necessary. The patient was up and about in the course of a month but remained in the hospital another month because of the persistent suppuration. His only subsequent complaint was one of sagging and weakness throughout the abdomen. This was overcome by means of an abdominal supporter. He has continued in good health since he recovered from the operation and has been at work for a number of months.

Examination of this kidney shows it to be ten inches long and five in its transverse diameter. It is very irregular in shape and the capsule is firmly adherent. The pelvis is extremely dilated and forms about two-thirds of the entire mass. What little kidney structure remains is crowded backward and outward and presents a thin-walled sac. The ureter unites with it at an acute angle. Dr. Steensland believes this to have been the cause of the hydronephrosis which subsequently became a hydropyonephrosis.

Case IV. Tuberculosis of the Kidney with Extensive Suppuration and Destruction of the Organ; Nephrectomy; Death.—Miss D., age twenty-seven years; unmarried; seamstress; was admitted into St. Joseph's Hospital June 3, 1904. Her father and one sister had died of pulmonary tuberculosis. As a child she had pneumonia, measles and inflammation of the bowels. She began to menstruate at thirteen and was always regular. She suffered a great deal from dysmenorrhea and had been operated upon by Dr. Herrick, of Troy, two years before, at which time the uterus was anchored and the appendix removed. She remained well until within a few weeks when she began to suffer from sharp pain in the right side of the abdomen. This pain radiated into the right loin. There was constant soreness but the pain was intermittent.

On June 2, the day before her admission into the hospital, she was seized with griping pain in the abdomen, which she attributed to the eating of bananas. On the following morning she had a severe chill and her temperature went up to 105.4° F. She was immediately brought to the hospital and it was found while she had some illy-defined abdominal tenderness, there was no rigidity. The pulse was 133. A leucocyte count showed the presence of 13,000 to each cubic millimeter. The urine contained a large quantity of pus. The abdominal symptoms subsided very promptly. An examination showed no disease of the heart, lungs or liver. In the right upper quadrant of the abdomen extending to the border of the ribs below the level of the umbilicus a large tender mass was palpable. It was rather fixed and could not be pushed upward but could be moved slightly laterally. Further questioning elicited the fact that the patient had lost about 16 pounds in a corresponding number of months and that she had been suffering from night-sweats. A specimen of urine was examined and found to be straw-colored, turbid, alkaline, sp. gr. 1.025, contained some albumin, no sugar, earthy phosphates decreased, total four per cent.; microscopically an excess of pus cells and a few round cells. Daily examinations of the urine were made for ten days. In every subsequent instance an acid urine was found containing a trace of albumin, large quantities of pus varying from 2½ to five per cent. of the amount of urine discharged; specific gravity in the main 1.015 and 1.017. Tubercle bacilli were found in several specimens. During the same period daily examinations of the blood were made. A leucocytosis was found to be present each time varying from 12,000 to 20,000, with an average of 14,700.

On June 23, assisted by Dr. Coon, I operated upon the patient. She took her anesthetic nicely. An incision was made through the right semilunar line. The peritoneum was very adherent to the kidney; one loop of intestine was likewise adherent. The kidney was fixed on all sides by adhesions. The ureter had a diameter of 1½ inches and as far down as one could trace it the same degree of dilatation was present. On the inner side the vena cava was adherent throughout its entire length. After a great deal of trouble I stripped the kidney out of its capsule and separated the adhesions. In doing this the vena cava was torn but immediately clamped and the loss of blood was not great. It was promptly sutured and the hemorrhage from it controlled in this way. The renal vessels were also torn. The patient bore the operation very poorly. At this point she went into collapse and required an intravenous saline injection. This improved her condition somewhat. There was quite a little difficulty in securing the bleeding vessels of the pedicle as they were so friable. A loop of the large intestine was also torn in separating the adhesions. This rent was immediately closed by suture. The outer opening in the loin was made for drainage and anteriorly the peritoneum was closed with catgut while the remaining structures were brought together with silkworm gut. The operation consumed an hour and three-quarters. The patient went into a condition of collapse after being put to bed and lived but six hours after the completion of the operation.

The specimen herewith presented exhibits but little resemblance to a kidney either in form or substance. It is six inches long and three wide. The upper pole is somewhat smaller than the lower. The pelvis is considerably dilated, thick-

ened and nodular. The perinephric tissue as well as the capsule are firmly adherent to the kidney. Islands of caseous degeneration can be readily seen upon various points on the surface of the kidney, and numerous areas exhibiting groups of characteristic tubercles. Upon opening the kidney no normal structure was found. The entire organ was replaced by broken down tuberculous tissue.

The four cases presented to you might be arranged in three groups; the first and third being grouped together. In these two cases we had to deal with a hydro- or a hydropyonephrosis without apparently a provoking cause. In Case I there was a large cystic tumor, too large to be carried up into the loin, which presented but few adhesions and permitted of very easy removal. Scarcely any shock attended the operation nor was there any disturbance in the postoperative course of her case. It is assumed that we had been dealing with a kidney in which the faulty position of the ureter was responsible for the subsequent hydronephrosis. We must not overlook the fact, however, that the tumor was first discovered in the iliac fossa. This fact suggests the possibility of a movable kidney in which a kinking or twisting of a ureter occurred.

Case III presents some very unusual features. The sudden onset is most unusual while the enormous size is particularly remarkable. A kidney which held over a gallon of fluid and from which this amount was removed by tapping and which in the course of a very few weeks filled again to a like extent, is, to say the least, noteworthy. This kidney was so immovable both because of its size as well as the extensive adhesions, that it was impossible to begin to free it until a gallon of fluid had been withdrawn. Despite these conditions and the friability of the sac and the extensive exposure of the abdomen necessary, there was not the slightest leakage into the peritoneal cavity nor were there manifestations of peritoneal infection evident at any time. This is the more remarkable as the involvement of the intestines led to an infection of the wound cavity so that there was a discharge of a quantity of foul pus each day which had a decidedly fecal odor. There was not, however, at the time of operation nor subsequently any evidence of injury to the bowel. It is assumed, however, that there was a migration of colon bacilli into the wound cavity.

The second case is likewise one of great interest particularly from an etiological standpoint. Was the man affected with the calculous condition of the kidney prior to the injury he sustained or was the traumatism the provoking cause of the disease in his kidney? I know of no way of determining this matter absolutely. There was no positive history of renal colic or other disturbance of the urinary tract prior to the receipt of the injury, whereas from the date thereof there was always some evidence of a damaged kidney. However, I am quite inclined to agree with Dr. Steensland that the calculous disease antedated the traumatism and the latter provoked an active disturbance which resulted in the production of a pyonephrosis. There is no doubt that there was a very sharp perinephric inflammation as a result of the injury. The adhesions encountered clearly indicated this. His recovery has been complete.

The only fatal case in this group was that of the young woman suffering from an extensive tuberculosis of the kidney. She was greatly reduced by the disease and its attending suppuration. There was profound anemia, persistent leucocytosis, very weak resistance and very extensive adhesions to and involvement of the surrounding structures. It is interesting to note how little blood was lost as a result of lacerating the vena cava and also how completely the hemorrhage from this vessel was controlled by suturing the rent.

You will readily note in examining this kidney that the destructive tuberculous process involved its entire substance, leaving nothing to suggest even the character of the organ. While the patient bore the operation poorly and did not rally from the shock attending it, it is very evident that greater difficulty would have attended the operation had the removal of the organ been attempted through the lumbar route. These cases at the best are most unpromising. This one because of the fixation of the mass presented especially unusual difficulties.

It seems to me that as we study each of the cases presented, we find not only ample justification in selecting the abdominal route, but while it would not have been impossible to have accomplished the removal of the kidney by the lumbar incision, the difficulties attending such a procedure would have been much greater than by the method selected.

I certainly do not wish to be understood as recommending the abdominal operation in preference to the lumbar in all nor yet in the greater number of cases requiring nephrectomy. However, I do believe that the abdominal operation is not performed as frequently as it should be. The books attach to it too great a mortality. When the tumor is of great size, when it is placed well down in the pelvis, when it is fixed by extensive adhesions, in a word, where it is necessary to have an abundance of room to expose the field of operation to remove tumors of large size or where firm adhesions are to be encountered, I believe the abdominal route to be less dangerous than the lumbar.

New Eye Hospital. The eye hospital, founded in Paris, under the provisions of Baron Adolphe Rothschild's will, will be opened for the reception of patients in about a couple of months. It is close to that extraordinary and picturesque specimen of landscape gardening, the Buttes Chaumont, in the crowded quarter of Belleville, in the midst of a large working-class population. The staff includes, among others, Trousseau, Sulzer, Millée, Florand, and Picqué.

MEDICAL PROGRESS.

SURGERY.

Acid Intoxication.—The study of this form of intoxication found its inception in the observations which were made upon cases suffering with diabetes mellitus. So-called diabetic coma was supposed to be due to the presence of acetone in the blood. Recently, however, it has been shown that acetonuria is a much more common disorder than was formerly supposed, the assumption that it was confined to diabetes having been proven to be absolutely erroneous. James A. Kelley (*Annals of Surgery*, February, 1905) states that acetone was first recognized as a pathological constituent of the urine in connection with diabetes by Tetters in 1857. Kaulish at the same time reported a series of cases of diabetes in which he found acetone, and in which he considered the coma to have been produced by this substance. Kussmaul, in 1874, took exception to this theory, and at a later period, Gerhardt and others demonstrated conclusively that acetone was associated with diacetic acid and B-oxybutyric acid in the blood of diabetic patients. What part the acetone may play in the lethal process may not be known, but it has long been recognized that patients in whom this substance occurs freely in the urine always take an anesthetic badly. Brewer, in 1902, reported a fatal case of appendicitis, which he considered to have been caused by acetonemia. An excess of acetone and diacetic acid has been recognized in the following conditions: (1) Diabetes, (2) starvation, (3) malignant growths, (4) digestive disturbances, (5) in septic processes, (6) in infectious fevers, (7) in pregnancy associated with the dead fetus, (8) in certain psychoses, (9) in auto intoxications, (10) in chronic morphinism, (11) in phosphorous poisoning, (12) following general anesthesia, (13) in injuries of the cerebrospinal system, (14) in shock, (15) in fatty liver, (16) probably in cases of uremia, (17) experimentally by the administration of phloridzin and by extirpation of the pancreas and solar plexus. None of the theories so far offered have explained the cause of this acid intoxication. Lambert considers that the condition found in eclampsia may be identical with that observed in acute yellow atrophy of the liver. The author considers that while the theory of intracranial pressure or of cerebral concussion suffices to explain a small number of the cases observed, a great deal more experimental and clinical work will have to be done on the subject before any definite conclusions can be reached. In conclusion the author states that the amount of acetone found in the urine is no index as to the severity of the affection. Whether the symptoms are due to the circulation of toxic substance acting on psychomotor centers or whether they are due to pressure upon these centers is not yet known. Some toxemia is certainly present whether due to fatty acids, to the rapid destruction of proteid matter or to the rapid elimination of the alkalis is also unknown.

Pyloroplasty.—This operation has more or less fallen into disuse in this country and in England. According to Rutherford Morrison (*Lancet*, February 11, 1905) this is not so much because the operation has been tried and found wanting, but because of the brilliant results recently obtained by the believers in the operation of gastro-enterostomy. The author believes that enough of these operations have been done, because it takes time to discover that there may be serious objections to new operations. It took ten years to discover that myxedema might follow the removal of the thyroid. It is not altogether improbable that such a revolution of the chemical and physical processes of digestion as is involved in a successful gastro-enterostomy will be followed by more or less serious consequences. The author has performed pyloroplasty in 20 cases up to 1898. All these cases recovered from the operation and their after history is as follows: One cannot be found and two are dead. One, a woman aged fifty-nine years, died eighteen months after the operation, from malignant growth. In three the symptoms have recurred, necessitating a further operation. In two of these cases, recurrence was due to stricture. In the third the patient had complained more or less since her first operation. She has always looked healthy and well in spite of her gastric complaints. At the second operation the pylorus easily admitted three fingers. Of the remaining fourteen, eight may be said to have been absolutely cured. In one of the remaining six no definite organic obstruction was found and the patient has gained in weight. In one the patient occasionally vomits and she is still gaining in weight. In another the symptoms are slight. The gain in weight is maintained. In another the patient has lost weight during the last three years. Two more may be looked upon as vastly improved.

Septic Origin of Gastric and Duodenal Ulcer.—That the condition may be brought about by sepsis is suggested by the résumé of the following case: W. B. Clarke, (*Lancet*, February 11, 1905) reports the history of a man, fifty-five years of age, who has suffered for six years from gastric ulcer. For many years he had been a sailor. Just six years ago he was shipwrecked and spent sixteen days in an open boat before he was picked up. During this time he lived on moldy, maggoty bread and putrid water. He immediately developed symptoms of gastric ulcer, viz., violent pain and black vomit. Robson and Moynihan had suggested that oral sepsis might be responsible for a number of duodenal ulcers and this supposition seems to be strengthened by the above recited case.

Rational Treatment of Fractures.—There is little room for doubt that less attention has been given to the subject of the treatment of fractures than to many other departments of surgery in the last twenty years. J. Stafford Mellish (*Lancet*, February 11, 1905) considers that the use of the old-fashioned rigid apparatus whether of wood or plaster-of-Paris, is not alone unnecessary but prejudicial to the best interests of the case. He believes that if the surgeon will devote his chief attention to keeping the circulation of the limb in a healthy condition, the results will be better and the less splinting he can get along with. The patient should be persuaded to indulge in all the movements that the joint is capable of. He recites a number of cases and concludes that if fractures were treated more along the lines suggested, there would be less opportunity for the press to teem with the marvelous cures of the so-called bonesetter fraternity.

Alcohol Dressings.—Attention is called to the value of this form of surgical dressing by Brugger (*Deut. med. Woch.*, February 16, 1905), who praises it very highly and advises its more general application. It may be applied as follows: The affected part is covered by about eight loose layers of gauze which are saturated with alcohol and over this is placed a thick pad of absorbent cotton. Some impervious material is then placed over the whole. The dressing should be sufficiently large to take in a considerable area on either side of the affected portion. The writer believes that as good results may usually be secured with alcohol of about 50 per cent. strength, as with that of 96 per cent., which was at first employed. It is important to see that the skin is perfectly dry before this dressing is applied,

if macerated, a caustic effect is likely to result. Open wounds should also be protected from direct contact with the alcohol by a packing of dry gauze. The dressing may be kept moist and should not be changed in less than twenty-four hours. The conditions most benefited are inflammations of the skin and lymphatics, where it has a well-marked anodyne effect in addition to inhibiting to a certain degree the infection.

Cervical Rib.—D. N. Eisendrath, less than a year ago, was able to find 34 reported cases of cervical rib which presented surgical symptoms. JOHN T. MURPHY (*Annals of Surgery*, March, 1905) states that the development of a cervical rib is either from the center of the transverse process of the sixth or seventh cervical vertebra or from a separate center of ossification. It articulates with the body and transverse process of the vertebræ in the same manner as the thoracic ribs. Most cases requiring surgical care arise from individual centers. The anomaly apparently does not develop until an average age of twenty-seven years. It appears thus that the development of the rib is in a measure synchronous with the eruption of the wisdom tooth. Why this is so is not known. In Murphy's specimen the base of the rib is measured three-eighths of an inch, while at the tip, where it curved downward to become attached to the first rib, it measured seven-eighths of an inch and was flattened from above downward. According to Eisendrath these cervical ribs exist normally in crocodiles. The rib in its development may press forward the nerve trunks and the subclavian artery above it, so that the pulsation of this vessel is the first sign of trouble. Edema is not a common symptom. This shows that the vein in the thirty odd cases reported has rarely been pressed upon. As proof that occasionally this rib may be of congenital origin, it may be stated that the scalinus anticus may occasionally be found attached to it. The cervical rib exists on both sides in 67 per cent. and on one side in about 33 per cent. The symptoms in cervical rib are, (1) those due to pressure on the nerve trunks; (2) pressure on the subclavian artery; (3) tumor formation in the supraclavicular triangle. Murphy's patient was a farmer, thirty-eight years of age. Symptoms began as tingling and numbness in the last phalanx of the left index finger. The pain gradually became intolerable. One inch above the clavicle, a pulsating expansile tumor was evident. The subclavian artery was exposed, the rib was freed and divided. It was detached. It was detached with the bone forceps and the wound closed. There was a normal convalescence and immediate cessation of the disturbance. The diagnosis of the condition in its early manifestation is a difficult one. Palpation is often more satisfactory than the X-ray in establishing the diagnosis.

MEDICINE.

Splenomedullary Leucemia. Drs. EVERETT J. BROWN and CECIL M. JACK reported in the *Journal A. M. A.*, March 26, 1904, a case of splenomyelogenous leucemia symptomatically cured by X-ray treatment. In the *Journal A. M. A.*, March 25, they report the final outcome of the case with autopsy findings. In the fall of 1904 the patient began to become weaker, the spleen enlarged again and he finally succumbed with typhoid-like symptoms just sixteen months after first coming under observation. The microscopic examination showed a somewhat enlarged spleen, some kidney lesions and no special gastrointestinal abnormalities. The pathologic examination showed a marked fibrosis of the spleen with a general picture of splenic anemia, no evidence of leucemia in the intestines or lungs, extensive deposits of lime salts in the kidneys involving especially the convoluted tubules, and the lymph glands showed a lymphoid hyperplasia resembling that of lymphatic leucemia, these being the only pathologic findings suggestive of leucemic disease. Dr. A. S. Warthin, of Ann Arbor, who made the pathologic examination, remarks that the only conclusion justified by the findings would seem to be that the X-ray treatment had resolved the leucemic condition into an aleucemic state, but that the essential disease process, as shown by the lymph glands, was still active. The leucocytes have been removed from the general circulation and from the areas of infiltration, and the splenic changes seemed to be secondary. The remarkable condition in the kidneys offers room for some speculation as to the source of a toxin such as might result from very extensive destruction of leucocytes. No specimen of bone marrow was secured, which the authors regret.

Visceroptosis.—This condition is synonymous with chronic invalidism. The downward displacement is without symptoms so long as the patient is in good physical condition. Occasionally local symptoms may arise from an organ as Dietl's crisis, or intermittent hydro-necrosis in a movable kidney, and other well-known conditions. When symptoms, however, associate themselves with prolapsed viscera, they are, as a rule, those of neurasthenia and are not cured by mechanical replacement of the offending organs. HUGH A. MCCALLUM (*Brit. Med. Jour.*, February 18, 1905) states that these patients should be put upon a modified Weir Mitchell treatment. The frequency of these ailments is startling. Over 90 per cent. of the cases of neurasthenia in the female are victims of visceroptosis. This disease is less prevalent in the male neurasthenics. Clinically, the etiological factors of importance are: bad standing posture, badly fitting garments, imperfect use of the lower zone of the thorax, absence of fat and want of tonicity of the abdominal muscles. Taylor and Keith were the first to point out that the origin of this disease begins in a faulty position and use of the thorax. On account of the backache and pelvic dragging, the symptoms of visceroptosis frequently point to the gynecological lesions. Unfortunately, however, it is not alone the uterus which is tilted back and in disorder. This is but a small portion of the evil condition existing. The skin of these patients is usually peculiarly atrophic. It is free from fat and devoid of elasticity. It is well known that dermatographia is a characteristic stigma of neurasthenia. The lower zone of the thorax falls in. It is unquestionably the shape of the thorax that has to do with the condition. The abdominal cavity can be conceived of as a joint. The health of the cavity can be fairly well gauged, as in the case of the joint, by the tone of the muscular covering of that cavity. The treatment of these cases should obviously begin early. Meek has well said that their cure should begin before they are born. In other words, everything possible should be done to develop the chest; for the acute attack typical Weir-Mitchell treatment is indicated. Hemoglobin should be carefully studied as well as the percentage of erythrocytes. It is well known that these increase more or less in proportion to the increase of body-weight. The distribution of fat in the male and female is different, the male carrying his on the shoulders, neck, back and abdominal cavity, the female carrying hers in the breast, buttocks and thigh. A departure from this type should arouse suspicion of arterial sclerosis. Massage promotes muscular development by increasing muscular feeding. It not alone assists the patient to get control of the lower neurons, but of the upper neurons as well. On account of the lesion of the thorax, it is not uncommon nor unlooked for that

phthisis and visceroptosis should often run hand in hand. Indeed, they are combined in about 50 per cent. of the cases. Hydrochloric acid, in the opinion of the author, is most frequently diminished in dilatation of the stomach.

Preliminary Report on the Treatment of Chronic Dysentery, by Irrigation of the Colon Through the Vermiform Appendix, or an opening into the Cecum.—W. H. Arthur (*Med. Rec.*, March 25, 1905) has carried out the treatment of dysentery by this plan in six cases, and is very favorably impressed with the results, although he considers the number too small to enable definite conclusions to be drawn. The advantages of this method of irrigation over the deep rectal injections are: (1) The irrigating fluid is delivered first at the point shown by experience at the post-mortem table to be the location of the most extensive lesions, and is carried from there by the natural peristaltic movement of the colon to the outlet. Rectal irrigations, to reach even the transverse colon, must overcome this natural tendency of the bowel to drive out any foreign substance. (2) It is entirely painless, and very much easier for the nurse to administer. Indeed, the patient can soon be taught to do the irrigating himself. (3) It is possible to keep it up much longer, for rectal irrigations soon become so distressing that they must be discontinued for long periods.

Pathology and Treatment of Leprosy.—The antagonism which has been shown to exist between certain pathogenic organisms having been pretty thoroughly worked out and classified, is beginning to be a ground work for most important researches. Capt. E. R. Rost (*Brit. Med. Jour.*, Februery 11, 1905) has observed that the bacillus of tuberculosis can be made to grow very rapidly by eliminating the salts of chlorin from the nutrient media. Chlorin, however, is so universally distributed, that the removal of these salts proves by no means an easy matter. Were it not for the fact that they could be removed with ease by chemical processes, except in this particular instance, where such processes would ruin the nutrient media, the problem would not be so difficult. The bacillus tuberculosis will grow in a fluid of low nutrient value, but one prepared by a distillation of extract of the beef, and containing only the volatile substances of the beef by passing steam from an autoclave through the extract, and so will the germs of leprosy and the bacillus of Lustgarten. In this medium a growth of tuberculosis germs can be had in from one to three days and the leprosy in from three to five days. It is, however, very difficult to obtain a solid medium on which to grow the bacillus, as agar contains a large quantity of chlorin. The writer succeeded in preparing a satisfactory medium by dialyzing nutrient agar in frequently changed, warmed, distilled agar. The bacillus of leprosy grows at first as a white and later a yellow or brick red, curly thick growth on the surface of the agar, very much as the bacillus of tuberculosis grows on the surface of glycerinized nutrient agar. From these cultures the author has prepared a toxin which he calls leprolin. This is prepared in similar lines with tuberculin. Leprolin prepared in this way will produce a powerful reaction in case of leprosy, which will last for three days or more. The author has prepared 500 doses of leprolin and has injected it in 120 cases of leprosy and in each case there has been the same reaction. Leprolin is now being used in 30 different places in India, but owing to the difficulty of preparation, only 20 doses per diem can be made with the present outfit. Reaction of leprolin may come on very soon after the injection, the temperature running up to 104° F. The dose now is 10 c.c. of a glycerinated preparation. The most remarkable effect of the injection is the suddenness with which sensation returns in the anesthetic patches. It further relieves the shooting pains of the limbs and joints and causes a disappearance of the feeling of weight in the legs. It makes the rough skin smooth. Areas which had been anesthetic before become tender to the touch. It causes ulcers to heal, sometimes after one injection. The same leprolin and the same preparation of the same culture will not always produce the same reaction in all cases of leprosy. As the results of treatment, it seems certain that four cases have been permanently cured. The number of cases now under treatment in Burmah is about 100. The author refutes the well-known absurd theory that the organism can enter the body through the consumption of badly cured fish, the demonstrated aversion of the bacillus of leprosy to salt proving beyond peradventure that it could not possibly be contained in the fish so often referred to.

OBSTETRICS AND GYNECOLOGY.

Placental Syphilis.—A certain amount of obscurity is still attached to the affections of the placenta in the syphilitic mother, according to Quierel. (*Annales de Gynéc. et d'Obstet.*, December, 1904). The syphilitic placenta is pale and more friable than the normal organ. While the ratio between the weights of the placenta and the fetus at term, in the healthy woman, is 1 to 6, in the syphilitic patient it is 1 to 4. This relative and absolute increase in weight of the placenta is due to a proliferation and sclerosis of its anatomic elements. There are three types of lesions: those that affect the blood vessels, the villosities and the connective tissue, respectively. The first is essentially an obliterating endarteritis. The second consists of an hypertrophy of the villi, which are infiltrated with embryonal tissue. There is an hyperplasia of the connective tissue elements. There is a general thickening of the cord, an infiltration and an induration of all its elements. The lesions of the fetus and those of the placenta are parallel. In some cases one may follow the continuity of lesions along the umbilical vein into the liver.

Gonorrhea as a Cause of Death.—Joseph Taber Johnson (*Journal A. M. A.*, March 11), reviews the opinions of authorities as to the effects of gonorrhea in producing female sterility and disease, and states his belief that if the mortality from this cause could be ascertained it would be found to equal that from either typhoid fever, pneumonia or tuberculosis, and that possibly it might be found to exceed the mortality from all three diseases. He thinks that gonorrhea is the cause of at least 30 per cent. of the deaths among prostitutes, and that through its later effects on the generative organs it may be the cause of death in a very large number of virtuous married women.

Ulcer of the Stomach at the Menopause.—A. Borri (*Centralbl. f. Gyn.*, February 18, 1905) says that ulcer of the stomach at or shortly after the menopause is frequent although there is nothing in the literature concerning the subject. Twelve cases are reported from Cohnheim's Polyclinic in Berlin. In all cases the disturbances began with the cessation of menstruation. The occurrence of the ulcer of the stomach is thought to have an undoubted relation to the circulatory disturbances of the climacteric, thus demonstrating again the truth of the hypothesis of Virchow that insufficient or disturbed circulation of the blood, although not the only cause, is an important etiological factor in the formation of ulcers of the stomach.

Rupture of the Vagina in the Act of Copulation.—The possibility of a rupture of the vagina during copula-

tion is an unquestionable fact and Balin (*Roussky Vrach*, January 15, 1905) found some 200 cases mentioned in literature. His own case was that of a maiden, of twenty-five years, in whom there was no question of rape, as she submitted to the act voluntarily, nor was there any undue force exerted by her partner. The etiology of this occurrence is not quite clear, and the various theories accounted for, such as tempestuous sexual excitement, unusual posture, and the like, are hardly tenable, for if such be the case, remarks Wannan aptly, then the number of similar accidents would be enormous. These causative agencies are only effective in the presence of some more important, and possibly, principal conditions. The author inclines to Vert's assumption that the histological structure of the mucous membrane of the organ presents the predisposition to rupture in some women. There is in such patients a certain loss of elasticity of the canal, a greater vulnerability, in short a condition of rigidity. This is physiological in women of a certain age, but may also be met with in young women during or after pregnancy, or in consequence of certain diseased states, such as in some varieties of vaginitis, or after the use of strong caustics, etc. On the other hand, there is an undoubted congenital aplasia or rigidity of the vaginal walls, and in the presence of other factors a rupture is quite likely to take place, although the entirely normal act may pass without its occurrence. From a medico-legal standpoint some authors are of the opinion that a rupture of the vaginal walls excludes the possibility of rape.

Contribution to the Pathological Anatomy of Puerperal Eclampsia.—Considerable attention has been lately paid to the rôle which the liver plays in this condition and in order to obtain a more definite picture of the actual changes which take place in this organ, H. Peterson (*Zeitschr. f. Geb. u. Gyn.*, Vol. 53, No. 2) has studied the histological changes by the aid of a new stain which affords a much clearer insight into the processes which occur in the hepatic cells. The stain is a differential one and for the details of its employment, reference must be made to the original article. The author claims to have demonstrated that the same processes occur in the liver which have already been noted in the lungs and kidneys of other eclamptic cases, consisting mainly of the excretion of fibrin, hemorrhages and thrombosis. All three of these phenomena were observed in the case which the writer reports, either together or independent, and the liver cells enclosed by the hemorrhages and the masses of fibrin, gradually undergo necrosis. No necrosis was observed, however, as the result of thrombus formation.

PRESCRIPTION HINTS.

The Treatment of Asthma. Hygienic, dietetic, and medicinal treatment of this neurosis forms the subject-matter of the paper by G. Carrière (*Annales de la Polyclin.*, March 1, 1905). The hygiene includes life in the open air, with avoidance of climates of high altitudes, or where the winds are strong, where the barometric or thermometric variations are extreme. Humidity is bad for asthmatics. The wearing of woolen undergarments, moderate exercise, hydrotherapy, massage, and alcoholic rubbings followed by dry friction, are recommended. As regards diet, moderation, particularly at the evening meal, at which meats should be excluded, should be observed; to be shunned are game, pork, preserves, cheese, tomatoes, sorrel and asparagus. Tobacco and alcohol should be avoided, and coffee should be used in moderation. The medicinal treatment is indispensable. The use of iodide of potash is essential, and is to be given in daily doses of .05 gm. for each year of age in the child and from .50 to 1. gm. per day in the adult. The following formula is recommended:

℞ Decoct. of 3 gms. polygala root.....100.00
Aquæ destill. 140.00
Eau de vie. 60.00
Tinct. lobeliæ. .....10 to 40.00
Potass. iodid. ..... 1 to 10.00

M. et S. Two tablespoonfuls daily, at meals.

Arsenical medication is also of value. The sodium arsenate may be given to children over two years old in daily doses of .0002 for each year of age, and to the adult .005. Trousseau has recommended the following prescription:

℞ Extract. belladonnæ..... } aa 0.01
Pulvis radic. belladonn..... }

F. pilula. S. give one daily and increase every other day with one pill. Treatment to last ten days in the child.

The tincture of belladonna may be used, two drops for each year of age, in the child. Von Noorden uses the sulphate of atropine, .0001 gm. daily, to be increased gradually until the daily dose is .0004. The association of the various agents mentioned above may be used as follows: (*a*) For ten days in the month, belladonna in its various forms may be administered. (*b*) For the rest of the month should be employed the following:

℞ Decoct. 3 gms. polygala root.....100.00
Aq. dest. 100.00
Tinct. lobeliæ ..... 10 to 40.00
Arseniate of soda ..... .004 to .10
Potass. iodid. ..... 1 to 10.00
Potass. bromid. ..... .50 to 10.00

M. et S. One tablespoonful twice daily.

During this time, the patient should smoke, every other day, one of the Despic cigarettes, made as follows:

℞ Folia bellad. ..... .30
Folia hyoscyami..... } aa .15
Folia daturæ..... }
Folia phellandii ..... .05

Macerate in a mixture of
Gummy ext. opii..... .013
Cherry-laurel water.....q. s.

Dry, cut fine, and make cigarettes with paper impregnated with the same liquid.

Electrotherapy has given excellent results. Every eight days the patient should get a pill containing .10 gms. of aloes. During the attacks the windows should be opened, avoiding possible chilling; sinapisms should be applied to the feet; a little of the following ointment should be inserted into the nostrils:

℞ Cocaine ..... .05
Menthol ..... .10
Vaselin 10.00

The patient should inhale 5 to 15 drops of pyridine on a handkerchief, and smoke one of the Despic cigarettes. He may inhale the vapor of water containing carbolic acid. Morphine (0.01) may be injected. If the heart is feeble, administer caffeine. If asthma is a symptom of various morbid conditions, as bronchitis, emphysema, heart and renal disease, these should receive attention.

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SANITATION AS AN ISSUE IN LOCAL POLITICS.

The approach of a municipal campaign suggests a useful outlet for the energies of the many medical men in New York who are interested in sanitary reform. In a word, sanitation should be made a live issue in local politics. The suggestion has been made before; only lately it was emphasized in an address delivered in New York by Surgeon-General Walter Wyman, of the Marine Hospital Service (page 726). The hopes of those who have advocated the idea have not been realized, however, because they have been content to state their views before medical societies instead of planting the main thought in the minds of practical politicians, through whom it can be brought speedily home to the whole community.

It is time now to descend from the realm of thought to the world of action. The first step once taken, the rest will be easy; for political capital can be made out of the indisputable need of sanitary progress, and the political organization which first takes hold of the idea in a sincere and sensible way will gain much by allying itself with a cause which cannot fail to become popular. The result can be nothing but good.

It may be said that the idea of sanitary improvement is not entirely new in municipal politics. The Citizens' Union and other organizations are committed to the policy of extending the system of free public baths, and the more significant notion of dotting the tenement districts with small parks and playgrounds has found a permanent place in political platforms. Originally the hobby of a small group of enthusiastic reformers, this latter innovation has now secured the recognition of all those who desire general support on election day. Its partial realization has let the light into many spots that were once dark and dreary, and its further development will aid materially in promoting the welfare of the least favored classes among our urban population. But the introduction of these indispensable breathing-spots is only one step, and a very short step, toward the distant great goal of a slumless city.

It has been said that no home is complete without a garden. The small parks of the tenement districts are the home gardens of the air-hungry poor; but they cannot, of themselves, make worthy and fit for human habitation the dark and crowded tenements of the neighborhood. Light and air are needed not only for those who are able to go out into the parks, but also for those who, whether from the necessities of their daily occupation or from illness, are compelled to stay indoors. There can be no real hope of the abolition of contagious diseases until the slums cease to exist. The wise sanitarian will demand and will accept no less than this. To make the object clear, the method plain, the voices of medical men must be heard in the approaching political councils, and they must not be silenced until "a slumless city" has become a victorious campaign cry.

THE RAINBOW ON THE ISTHMUS.

The electric storm which has recently been centered in the Canal Belt has subsided with the abolition of the previous commission and the threatening clouds have passed away, leaving a brilliant rainbow, as far as the future sanitation of the Isthmus is concerned.

The belief, however, that the executive powers have been influenced in the slightest degree by the hasty report of Dr. A. L. Reed is untenable. In the first place, the Secretary of War would hardly have been governed by charges which he has characterized as "biased and controversial, and not written in the judicial spirit that inspires confidence in their justice and accuracy." Nor would the President of the

United States have been swayed by statements that he denounces "in many instances as unwarranted by facts" and by "accusations" which he declares "in many instances to be unsupported by proof."

In the second place, it has been widely known for a long time, even outside of Administration circles, that the Executive was dissatisfied not with the personnel of the Board itself, but with its circumlocution and the dilatory way in which its work was accomplished, and as a matter of history the now celebrated letter to Congress foreshadowing the change was sent *before* Dr. Reed left the United States. It is also a significant fact, that on the dissolution of the Commission Mr. Grunsky, who was "especially" the object of Dr. Reed's attack, was provided with a better appointment than his colleagues; an action on the President's part which is not indicative of disapproval.

Moreover, it must be borne in mind that this dissatisfaction of the authorities was not so much with the sanitary arrangements or want of them, as it was in the delay in matters relating to the Canal itself—"the inherent clumsiness," as Secretary Taft expresses it, "of the Commission as an executive body." For while the sanitary aspect is naturally the one that claims the attention of medical men in this country, to the exclusion of all else, yet to those intrusted with the management of affairs on the Isthmus, the principal object to be attained is the completion of the Canal. The situation in fact resembles the position of some of our generals in the Civil War. Their desire was to save and protect their men in every possible way. To this end they appointed a medical staff and a sanitary corps to whom they entrusted the details. This having been done, they turned their personal attention to what they were responsible for—the winning of the battle.

That the late Commission did not succeed was not entirely its own fault. With a board of seven members, and hampered by the circumlocution rendered necessary by the bill as passed by Congress, it was difficult, if not impossible, to act either quickly or compactly, and it is to remedy these defects of organization that the decided and drastic action of the President seems to have been taken. As is well known, it was his original intention to reduce the number of commissioners to three. Of these Mr. T. P. Shonts was to be Chairman and General Director, the entire sanitary arrangements were to be placed in the hands of Judge C. E. Magoon, the Governor of the Canal Zone, while the engineering matters were to be under the control of Engineer Wallace. This arrangement still holds good and is now in force, but as the Attorney-General of the United States has ruled that under the existing law the commission *must* be composed of seven members, four additional Commissioners have been appointed.

This, however, is rather in the nature of the classic little cottage girl of Wordsworth, with her immutable "We are seven." We seriously trust though, that two of them will not in the churchyard lie, nor that two will have gone to sea, but it is extremely unlikely that they will take their little porringers to be filled by government after Congress has consented and has had an opportunity to amend the bill. Meanwhile they will find more than enough to occupy their time, if they are to take up the numerous plans offered to the Commission in regard to the different levels of the Canal, varying, as they do, from what is known as the "sea level" to the "French plan," which was the one originally undertaken by de Lesseps.

It is, however, upon the sanitary management that the interest of the entire medical profession will center, and it is a most fortunate thing for them that its complete control has been, as we have said, placed in the hands of Judge Magoon. During the entire period of the Havana disinfection Governor Magoon was officially connected with the War Department, and was fully and most appreciatively cognizant of all its details. He is not only a trained lawyer and business man, but he is possessed of the broad judgment and judicial qualifications that will enable him to see things as they really are, and to realize what the necessities of arising complications may be. From his recent utterances on the subject, it is apparent that he has the greatest respect for the ability and achievements of Dr. Gorgas and his *confrères*, and that it is his full determination to do everything in his power to aid and abet them.

The congressional enactment in regard to the powers of the Commissioners is, of course, unwieldy and cumbersome in its present restrictions, but the profession can rest assured that any vexatious delays in the near future will be due to that fact, and to that alone. For we feel sure that in this case the lying down of the legal lion with the medical lamb will be characterized by "a long pull, a strong pull, and a pull *all-together*."

THE HAHNEMANN SESQUI-CENTENNIAL.

On Tuesday evening, a week ago (April 11), the disciples of Hahnemann, the founder of homeopathy, celebrated the one hundred and fiftieth anniversary of the birth of the master, by a banquet at the Astor Hotel.

At the present time, the members of the regular profession of medicine can contemplate such a celebration with much more complacency than would have been possible even a quarter of a century ago. It is not that they are any the less convinced of the fact that certain of the fundamental principles of homeopathy are surely false, because of their incompleteness, but that they have come to realize that physicians of all schools are drawing together in matters apart from pharmacotherapy and that drugs, after all, represent only a comparatively small portion of the therapeutic armamentarium of the physician wise in this generation.

There can be little doubt that Hahnemann, in spite of errors in his system of therapeutics, contributed not a little to this consummation so devoutly to be wished, that has come in our day of less dependence on drugs and more trust in nature's resources and more faith in the remedial measures that enable nature to resume her sway even amid the diseased processes in the body. When Hahnemann began his work, a large part of the medical profession, including even some of its leaders, was prescribing mixtures containing many and varied ingredients, of which the practitioners of the time knew very little, for patients suffering from diseases of which, if possible, they knew less than the remedies they were employing. As yet the great developments in modern physical diagnosis, in pathology and in bacteriology were only in their infancy. The one aim of the physician seemed to be to use remedial measures that would have a very palpable effect upon the patient. Whether that effect was for good or evil seemed to be very little considered. Bleeding, purging and the use of strong depressants was the order of the day.

The first thing that Hahnemann's system did, and the result was quite unintentional on his part, was to make it very clear to the medical world that for most diseases what might well be called expectant treatment, served quite as well as regards saving of life, and in addition, saved the patient the intense annoyance of the more heroic remedial measures that were in vogue. No wonder there grew up in the minds of the thinking men of that generation outside of medicine, the impression so commonly voiced by believers in homeopathy at the present time, that at least if the new system of therapeutics did no good, it did little harm. The first principle of all remedy giving has been and must be non nocere—to do no harm. It was the fact that his minute dilutions accomplished this primal purpose much more than his introduction of supposed new principles of therapeutics that gave Hahnemann his success and eventually enabled him to maintain himself in spite of opposition from the regular profession even to the extent of founding a new school of medicine.

Many of the most enthusiastic of his disciples do not now accept in its entirety his principle "like cures like." For a very long time it has been true that none except the most inconsequentially ardent of his disciples have believed in the principle of dilution and high potency in its entirety. At the present time, however, there are some very striking phenomena in the developing science of physical chemistry which show that Hahnemann's high-dilution theories, while purely dogmatic and unsupported, contained some very interesting anticipations of later-day chemistry. Perhaps the most suggestive observation among recent chemical discoveries is the fact that in very dilute solution such substances as platinum and silver and other metals may acquire physicochemical properties immensely more powerful than any mere chemical affinities. The colloidal solutions of the metals, the principle of dissociation in solutions, and the so-called metallic ferments with their wonderful properties are only so many examples of how much science may develop along lines where such development is least expected.

There are those who see in Hahnemann's declaration that all diseases were due to the itch mite, an anticipation of the whole doctrine of modern bacteriology. To the unsympathetic outsider this looks like stretching a point very far in order to do honor to the master, especially when one recalls the analogous views of Charaka, of Hippocrates, even of Aristotle. Hahnemann, however, does not need any such far-fetched reasons for doing him honor. He undoubtedly accomplished a good work, though many of the methods employed were as mistaken as those of the regular school of medicine, whose tenets he was undermining.

There seems no doubt, however, that his modern disciples might realize the incompleteness of the principles underlying his system and now that in many points there have come radical departures from his doctrine, might properly disarm

the supposed exclusiveness of therapeutic principle which characterizes them. In the field of surgery, of hygiene and sanitation, of hospital care, and of the use of the various physical therapeutic agents, the modern up-to-date homeopathist is following the path made clear by his brother of the regular school. Why should there not be an opportunity for a gradual drawing together in the one department of pharmacotherapy where both sides are weakest and where the characteristic feature of medical teaching has always been a little reminiscent of Josh Billings' expression that "it is not the ignorance of men that made them so ridiculous as the knowing so many things that ain't so."

ECHOES AND NEWS.

NEW YORK.

The Meningitis Situation.—The deaths in the city from cerebrospinal meningitis during the week ending with Saturday, April 15, numbered 117, as against 110 of the preceding week. This increase, however, does not bring the rate up to the maximum which was reached two weeks ago with a record of 131 deaths, and it is hoped that the crisis of the situation is passed. The commission appointed by Dr. Darlington to combat the disease, held its weekly meeting on the evening of April 14; no definite conclusion was reached, but the commission is still engaged in gathering data.

Election of Officers.—At the annual meeting of the New York County Medical Association, held last Monday night, in the New York Academy of Medicine, the following officers were elected for the ensuing year: Francis J. Quinlan, M.D., president; Jno. A. Bodine, M.D., first vice-president; H. H. Seabrook, M.D., second vice-president; W. R. Stone, M.D., secretary; Chas. G. Child, Jr., M.D., corresponding secretary; Charles E. Denison, M.D., treasurer; H. A. Dodin, M.D., member of executive committee for three years; Wisner R. Townsend, M.D., member of nominating committee, fifth district branch.

Hospital Down the Bay.—On April 14, the New Jersey Dock and Bridge Building Company were awarded the contract for building an island southwest of Ellis Island, as a location for a Government hospital for contagious diseases. Piles will be driven, and an island ten acres in extent build of stone, sand and cement. The contract price for the work is $119,000. It is hoped that the hospital will be ready for use by January, 1906. It is to cost $250,000 and to accommodate cases of measles, diphtheria, scarlet fever and the minor contagious diseases generally. The steamship companies which bring the patients will defray the cost of caring for them.

Preventive Appendectomy. The dangers, direct and indirect, attending the removal of the appendix except for good cause have been urged rather cogently by various physicians of late, but evidently have failed to impress Dr. Stella G. Root, of Stamford, Conn., who had her appendix removed at the Hahnemann Hospital a few days ago as a preliminary to going abroad for a prolonged course of study. She had never been afflicted or threatened, but she did not want to be, and took this means to insure freedom from the possibility of an attack while abroad. Dr. Whitney, of the house staff, says that this is the only case on record where an operation has been performed for such a purpose, although interval operations are common enough.

Crippled Children's Driving Fund.—The Crippled Children's Driving Fund was incorporated in November, 1904. Active work is now beginning. The object of the society is to provide outdoor recreation for crippled children of the hospitals and tenements, from April to November. Stages will take them to Central Park, to recreation piers, over Brooklyn and Williamsburg bridges (children of the lower East Side), and it is hoped plans may be made to have some roof gardens opened exclusively for crippled children for a few hours each week. The cooperation of all visitors to the tenements is requested in order that, so far as possible, a complete census of the crippled children in New York may be secured. Names may be sent to Miss Edna G. Mecker, Superintendent, Crippled Children's Driving Fund, 105 East Twenty-second Street.

Hospital Appointments.—The following students at the College of Physicians and Surgeons have received hospital appointments during the past week: *New York* Hospital, N. S. Shenstone, G. F. Cottle, F. H. Bartlett, W. B. Mount. *J. Hood Wright*, First, F. D. Solley, R. Cordner. *Newark City*, J. J. Smith; alternates, S. W. Dodd, C. L. Allers. *Columbus*, E. P. Schaefer, J. D. Gaskins. *Paterson General*, O. R. Hagen. *St. Barnabas, Newark*, First, H. W. Wright, R. E. Black. *St. Joseph's, Paterson*, W. J. Tiffany, F. Y. Neer. *St. Luke's*, H. S. Holland, F. H. Hayes, M. B. Swift, A. L. Hutton. *Presbyterian*, First, J. J. Barrett, G. M. Smith, J. W. Jameson. *Roosevelt*, First, R. Dwight, C. W. Bartow, E. A. Park, M. E. Johnston, R. Townshend, R. M. Brown, E. M. Colie, Jr. *Sydenham*, A. H. Zeiler; alternates, Max Volk, Louis Cohen. *Hale Hospital, Haverhill, Mass.*, S. B. Smith.

Robin's Treatment of Meningitis.—Much interest is manifested in New York in the new method of treating meningitis used by Dr. Albert Robin, at the Hospital Beaujon, in Paris, although it is recognized both here and in Chicago that it is too early to make any authoritative statement in regard to it. Dr. Albert Robin's treatment consists in injections of metallic ferments, a "solution of one in ten thousand." Every day 20 c.cm. are injected into the muscular tissue of the hip or abdomen. In cases presenting very serious symptoms Dr. Robin obtained good results from intravenous injections of a solution containing one milligram of the metallic ferment per cubic centimeter. Silver and manganese are the metallic ferments which seem to give the most successful results. This medication is free from disadvantages. After a few injections the record of the patient's temperature shows a general lowering. Each injection is followed by a rise in temperature, more or less marked, followed in its turn by a decrease which brings the temperature below the initial figure.

New Home for Convalescents.—Announcement is made of the incorporation in New York of the Solomon and Betty Loeb Memorial Home for Convalescents. The foundation has been erected by the children of those in whose memory it is named, and a condition has been made that no discrimination on account of faith, nationality, or pecuniary circumstances shall affect the admission of applicants. It is hoped that the home may be made attractive to persons of moderate means who would be unable to pay the large sums demanded at regular hotels and boarding-houses, but would not be willing to accept benefits for which they were not allowed to pay according to their own abilities. Besides actual convalescents, it is also intended to receive those who are in poor physical condition from anemia or

similar troubles; but no attempt is to be made to cure either acute or chronic diseases. For these purposes, there has been given $750,000, of which $500,000 is to be set aside as a permanent income-producing fund. A farm of seventy acres has been purchased at East View, Westchester County, on the New York and Putnam Road, and the plans contemplate the erection of a number of detached cottages, which are to be as home-like as possible.

Meeting of the American Physical Education Association.—The meeting of the American Physical Education Association opened on April 17, at Teachers' College, with an address from Dr. Luther Halsey Gulick, director of physical training in the New York public schools, on "Rhythm and Education." He insisted on the importance of alternate periods of activity and rest in life. He pointed out that children's play follows the same periodicity—games being taken up and dropped at certain seasons—and believed many of the works of genius were produced under the same law. "Continuous work fatigues the brain cells, and periods of rest following those of intense activity is the scientific and most economical way," he said, "and if too long continued will pull genius down to mediocrity." The morning was devoted to a consideration of the usefulness of dancing in physical training of boys and girls. Miss Caroline Crawford, of Teachers' College, advocated letting little children dance in the gymnasium.

"Let them do the kind of dancing that they like best," said Miss Crawford, "and it will probably be found to be the kind that is performed to the accompaniment of Indian tunes. Let them do Indian war dances. Give the tots a chance to get their exercise in the way that they like best and it will be found to be the most beneficial to them."

In the afternoon Dr. George L. Meylan, Columbia's physical director, spoke about marks for proficiency in physical education. "Vitality is much more desirable than strength," said Dr. Meylan. "Vitality and endurance are correlated and endurance tests are the things that we are trying to make. No satisfactory vitality test has been found."

Prof. Frank Boaz, of Columbia University, spoke on "The Significance of Epochs in Growth and Development." He made a chart on the blackboard representing the results of many years' investigations. The chart showed at what age the average persons reached certain stages of development.

Forty-four and a half years was put down as the point at which the first approach of senility is noticed, though Prof. Boaz did not mean to exploit any Osler theory. The age varies greatly with different persons.

At the afternoon session the convention divided into two sections. That on Therapeutic Gymnastics devoted itself entirely to the use of gymnastics in the restoration of health. A committee to discuss the advisability of forming a permanent organization in connection with the American Association was appointed.

A paper by Dr. Compton Reilly, of Baltimore, on "Scoliosis," was illustrated by a girl, about sixteen years old, suffering from a bad case of spinal curvature. The method of treating the case by lying on the back and raising one leg high in the air was demonstrated. Other methods of alleviation were by series of exercises of the limbs while the patient was hanging by her hands from a horizontal bar.

It was announced that the National Anthropometric Association was going to get the measurements through the Y. M. C. A. branches, colleges and schools of America of 40,000 men and women, in order to determine the exact proportions of the national type. The measurements of women will be made at the Boston Normal Training School.

PHILADELPHIA.

Measles Develop on a Steamer.—The transatlantic liner, Friesland, which arrived from Liverpool, had on board several cases of measles. They were placed in a temporary hospital where they will be detained with their parents and friends. Several cases of trachoma were on board the same steamer; they will be returned to Liverpool.

A Commission to Investigate the Conditions of the Insane Asylums.—The Senate concurred in a joint resolution creating a commission to investigate the various charitable institutions maintained, wholly or in part, by State appropriations. The commission will make suggestions to correct abuses, carry out reforms and to make recommendation with respect to the management, improvement, enlargement and control of the institutions.

Pathological Society.—The regular meeting of this society was held April 13, when Drs. G. McConnell and J. T. Thornton read a paper on "Duodenal Ulcer Following Superficial Burns." Dr. W. G. Spiller read a paper on "The Findings in Four Cases of Anterior Poliomyelitis." Dr. M. H. Fussell then read a paper on "A Case of Thoracic Aneurism." Dr. G. C. Robinson read a paper on "The Etiological Significance of Typhoid Bacilli in the Lungs."

Poor Consumptives Must Pay.—During the course of a lecture at the Mercantile Hall, Dr. Lawrence Flick announced the new partial-pay policy of running the Free Hospital for Consumptives, at White Haven, which was decided upon at the last annual meeting of the society. The patients now at the hospital will, about June 1, when the new policy is to take effect, be placed upon the convalescent farm, where they can do some work which will contribute to their support. Until the capacity of the hospital is increased to 300 beds the cost of maintaining each patient will be from $6 to $7 per week.

Section on Medicine of the College of Physicians.—The section met April 10. The scientific program was opened by Dr. H. A. Hare, who presented a "Case of Paroxysmal Hematinuria." Dr. Steele reported a case which died of chronic interstitial nephritis; during life no pepsin or hydrochloric acid could be demonstrated in the contents of the stomach. The case was discussed by Dr. Francine and by Dr. Coplin. Dr. Francine then presented two cases of dexiocardia occurring in pulmonary tuberculosis. These cases were discussed by Drs. Sailer and Fussell. Dr. Sailer read a paper on carcinoma of the alimentary tract.

Enteric Fever and the Water Supply.—At the Franklin Institute, Kenneth Allen, superintendent of the Water Department of Atlantic City, read a paper entitled "Sanitary Protection of the Water Supply." Typhoid fever, he said, is the most serious results of impure water supply and therefore the life history of this organism and the mode of infection deserves the closest study. While the bacillus survives low temperatures for considerable time, yet no typhoid epidemic has been traced to the use of impure ice. In rivers, he said, the water bacteria tend to exterminate this organism, yet they are not always successful. Infections of small rapidly flowing streams are to be most feared. The remedy of unsanitary conditions lies in the prevention of pollution and the securing of pure supply or the purification of an inferior supply.

American Philosophical Society.—At the meeting of this society Prof. R. H. Chittenden, of Yale Uni-

versity, read a paper on amount of food assimilated. In a series of experiments he found that one-third or one-half of the amount of food taken ordinarily is sufficient to supply the needs of the economy. An excess is detrimental to the health and is responsible for gout, rheumatism and kindred diseases. Alcohol, when taken with proteids, prevents proper assimilation of the food. When taken alone it will take the place of proteids to a certain extent. Prof. Krämer in an article "The Oligodynamic Action of Copper on Some of the Intestinal Bacteria," said some of the bacteria, like the *Bacillus typhosus*, are destroyed if introduced into water which has been in contact with copper foil, or if the copper foil is put in water in which the bacteria are known to exist. This is the principle involved in the method of making water fit for drinking purposes with copper solutions. Dr. Harvey W. Wiley spoke on the subject of poisons in the food. He said some individuals are more susceptible to poisons than others, therefore, the object of the restrictive laws should be, to protect the weakest and not the strongest. The direct principles of legislation should prohibit the addition of any substance to food which is not necessary to their preparation.

Annual Meeting of the Pennsylvania Society for the Prevention of Tuberculosis.—The President, Dr. Howard S. Anders, expressed the disappointment of the society when they learned that the Governor failed to sign the appropriation bill for the consumptive camps. He recommended that marriage licenses be refused to individuals affected with tuberculosis; that systematic war be waged against the house-fly; that the habitual use of alcohol, even in moderate doses, be discouraged; that the use of the public drinking cup be discontinued; that the children of the work rooms and of the tenements be examined frequently for tuberculosis and guarded against this form of infection; that the modern method of preventing tuberculosis be taught in the public schools. The following officers were elected: President, Dr. Joseph Walsh; vice-presidents, Dr. M. P. Ravenel, Dr. Benjamin Lee, Talcott Williams, Dr. A. B. Craig, Dr. Howard S. Anders, Samuel Kastner, Dr. Samuel Dixon, Dr. Lawrence Flick, Samuel Scoville, Jr., Dr. Seneca Egbert; Secretary, Dr. Ward Brinton; Solicitor, James L. Stanton; Treasurer, the Commonwealth Title Insurance and Trust Company; Board of Directors, Drs. Flick, Norris, McCarthy, Anders, Pearson, J. L. Stanton, W. B. Stanton, Irvin, Roussel, Ravenel, Davidson, J. Solis-Cohen, Walsh, Brinton and Scoville, Jr.

American Anatomists at the Wistar Institute.—The ten leading anatomists who were made an advisory board to the Wistar Institute appointed a committee of five to cooperate with the Committee on Brain Investigation of the International Academies, a committee of three on comparative anatomy and embryology, and a committee of three on the relations of the Wistar Institute to the American Anatomists as individuals. This board advised that the principal object of the institute should be research, with a chair of investigation at from $3,000 to $5,000 and research assistants to divide their services between the museum proper and the anatomical assistance. The new combination looks to establish experts at stations throughout the world to collect and to preserve human and other brains, and human and other embryos, and material for the study of comparative anatomy and embryology. During the conference Dr. Gage said it was easy to cultivate a great willingness among distinguished men to assign their brains if assured that the brains would be of real service to science. He also said that the Cornell Brain Association made it a point never to insist upon their right to a bequest of a great man's brain where the family objected. In published reports of the investigations of the brains names were suppressed to avoid any distress to the children of the deceased. After a long time has elapsed it would make no difference if the names are revealed, for, he said, no one is now distressed by the discussion of the brain of Cuvier.

CHICAGO.

Training School to Enlarge.—The Lincoln Park Hospital and Training School for Nurses has acquired by purchase for $35,000 from John A. and Anna S. Raithel, the property at 500 and 502 La Salle Avenue.

Lecture for a Hospital.—Mr. John F. Bass will give an illustrated lecture on the Russo-Japanese War, April 25, for the benefit of the Chicago Union Hospital. The proceeds will go toward building a fireproof hospital to replace the one recently burned. Mr. Bass was one of the Chicago *Daily News* special correspondents in Manchuria.

First Aid Journal.—The initial number of a monthly magazine called *First Aid*, which is the official organ of the American White Cross First Aid Society has appeared, and contains articles by Dr. Nicholas Senn, Dr. Geo. W. Webster, and Mrs. John B. Murphy. The magazine is devoted, as its title implies, to spreading the knowledge of first aid to the injured.

Possible Expulsion of Dr. Stone.—Dr. Carl D. Stone, said to be convicted in 1903 of violating the postal law, will be given ten days' grace by the Committee on Ethics of the Chicago Medical Society. At the end of that time, if he cannot explain satisfactorily his connection with the Archer Chemical Company and the questionable circulars sent out by that concern, it is said he will be expelled from the society. Drs. Wm. H. Wilder, N. S. Davis, and I. N. Danforth, constitute the Committee on Ethics. The action regarding Dr. Stone was taken at a recent meeting of the council of the Chicago Medical Society.

Meeting of State Board of Health.—The State Board of Health at its quarterly meeting, recently held in this city, heard an exhaustive report on the sanitary condition of the penitentiary at Joliet by the secretary of the board, Dr. James A. Egan. The report indicated the need for increased facilities at the institution if the health of the 1,400 inmates is to be maintained unimpaired. The main defect of the present cell arrangement Dr. Egan found to be in the inadequate air space, and in the lack of light. No great increase in the death-rate had been demonstrated. Jacob Harmon, sanitary engineer; Prof. John H. Long, chemist, and Dr. Robert Zeit, bacteriologist, are engaged in preparing a supplementary report on the air conditions in the present cell houses.

Cerebrospinal Meningitis.—So far as can be learned, there have been two fatal cases of this disease in this city. One of the patients was a child, five and one-half years of age; the other nineteen years of age, who died at the Cook County Hospital. The latter was an Italian immigrant. He was kept in quarantine at New York several days, and upon his release started immediately for the West. While on the train the patient was attacked with excruciating pains in the head, which grew worse, and when he reached Chicago suffering was intense. He appealed to the Italian consul for aid, and was sent to the County Hospital in a police ambulance. He was placed in the contagious ward, and everything was done by the hospital physicians to save his life, but after twenty-three hours of suffering he died.

Care and Treatment of Epileptics.—A class of forty, under the direction of Professor Graham Taylor, of the Institute of Social Science and Art, recently visited the Cook County Infirmary at Dunning, and were conducted over the institution by Dr. V. H. Podstata, who gave a short talk on the care and treatment of epileptics. Among other things, he said that society is wholly responsible for the conditions which are the causes of epilepsy, and it is the duty of society at large to contribute to the care of these unfortunates, who are the victims of conditions created by it. More than 85 per cent. of epileptics are hereditary sufferers, and alcoholism of the parents is responsible for the great majority. It has been said that not less than one of every three children of alcoholic parents suffers from epilepsy. Colonization of sufferers is the only way in which epileptics properly can be cared for. He said in the County Institution they were thrown with the insane, a condition, he asserted, to be unfair to both classes of patients. The majority of physicians are willing to admit that purely medical or surgical treatment is of little or no value except in extremely isolated cases. More has been accomplished by a truly hygienic mode of living, strict regulations of the habits of life, and particularly by suitable, interesting employment and surroundings.

A Lesson in Milk Testing.—The records of the Department of Health of Chicago for the last five years, so far as they concern the crusade against the use of formalin in milk, appear to teach very clearly the important lesson, that under no possible condition is it justifiable to threaten the health of the public by tampering with food products. The Chicago *Evening Post*, in a recent editorial, has the following to say on this subject: "Formalin is not added to milk to make it more wholesome. Commercialism never takes wholesomeness into consideration. The chemical is a powerful antiseptic and preservative. Added to milk it retards the ordinary natural process of souring. Thus, in order to keep up the apparent commercial value of milk, dishonest dealers add a poison; they 'preserve' the outward physical characteristics of the milk, but destroy its wholesomeness." The statistics of the Department of Health leave no doubt that the use of formalin in this way is an agent that increases the rate of infant mortality. In 1900, when the crusade began, the death-rate of infants under five years of age in Chicago was 43.5 in every thousand. That year the number of samples of milk examined was 19,053, of which 293 were found to contain formalin. Last year the death-rate for the ages mentioned was 34.7; the number of milk samples analyzed was 25,243, of which only 25 contained formalin. That is, the increase in the number of milk samples examined was 32.48 per cent., and the decrease in the number of formalin samples discovered was 91.4 per cent.; the reduction in the infant mortality rate was one-fifth (20.2 per cent.) in 1904 from the rate in 1900. "Seldom do we find the efforts of public health officials so clearly supported by results as they have been in this crusade against commercially poisoned milk, with its great reduction in the reprehensible practice and its corresponding falling off in the infant death-rate. The department can be measurably encouraged not only to continue its vigilance in this direction, but to widen it until the sacrifice of health through selfish and dishonest commercialism shall be wholly prevented."

State of Chicago's Health.—The bulletin issued by Dr. Arthur R. Reynolds, Commissioner of Health in Chicago, shows a decrease of 25.3 per cent. in the death-rate of the last decade from that of the preceding one. Newsholme and other vital statisticians accept the mortality among the young as a "most reliable test of the sanitary condition and of the sanitary administration of a community." Studied from this point of view it is seen that nearly three-fourths of the total saving of human life during the last decade, as compared with the previous one, was the age-group whose mortality forms "a most reliable test" of the health conditions of a city. Study of the detailed tables in the report shows that the greatest reductions of mortality are among the diseases which sanitary administration and sanitary conditons have the greatest and most direct control, as smallpox, diphtheria, typhoid, etc. Finally, consumption itself—until within the last few years and until superseded by pneumonia—the cause of the greatest number of deaths, shows a decrease of 13.7 per cent. in the last decade, that is, from a rate of 17.6 per 10,000 of population to a rate of 15.2, and a constructive saving of 3,915 lives. Except cancer—the death rate of which has increased 22.8 per cent.—every one of the important causes of death which show an increase in the last decade, may be traced clearly to the malign influence of the "Demon of Influenza." Beginning in the winter of 1889-90 this disease, which formerly visited the country only at long intervals, has become domesticated with us, and there has been no year in the last fifteen when it has not been present in this city. Among other important causes of death which show decreases in the second decade are bronchitis, 41.3 per cent.; cerebral apoplexy, 23.4 per cent.; the nervous diseases, 45.8 per cent. With these decreases neither medical science nor sanitary administration can claim to have had much to do. They must be attributed to the general improvement of physique and increased vitality of the people of Chicago, due to saner modes of life, to better personal hygiene, to that popular education in sanitary matters which has made such vast strides in the last quarter of a century.

Association of American Medical Colleges.—The fifteenth annual meeting was held in Chicago, April 10. The association adopted a new constitution and by-laws, so that now the annual dues are raised to $25. The minimum entrance requirement was made a diploma from an accredited high school, normal school, or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study, embracing not less than two years of foreign languages, of which one must be Latin; two years of mathematics; two years of English; one year of history; two years of laboratory science, and six years of further credit in language, literature, history or science. The applicant is required to take an examination in prescribed subjects, or he must present certificates from reputable instructors recognized by the Superintendent of Public Instruction in the city or State in which the college is located, or by any State board of medical examiners duly authorized by law, which might be accepted in lieu of any part of this examination. Provision is made for a four-year course of study in four calendar years, each annual course to have been not less than thirty teaching weeks, including examinations, duration, and at least ten months intervening between the beginning of any course and the beginning of the preceding course. Credit may be given to the holder of a bachelor's degree for any work in the medical branches which he has successfully completed in his college course only so far as it is the full equivalent of corresponding work in the medical curriculum. The holder of such degree may also be given time

credits of not exceeding more than one year; provided he has had at least forty hours in physics, one hundred and forty-four hours in chemistry, twenty-four hours in osteology, two hundred and ninety-two hours in human or comparative anatomy, one hundred and twenty-four hours in histology, eighty-five hours in embryology, one hundred and forty-five hours in physiology, and forty-six hours in materia medica, provided that the applicant satisfies the professors of the Chairs in the medical school as to his proficiency in these first-year medical studies. Every student is obliged to attend eighty per cent. of the exercises in every annual course of study for which he seeks credit, and no credit shall be given unless he attains a grade of at least 70 per cent. or its equivalent in any other marking system. No student shall be graduated unless he attains a passing grade in each and all subjects of the required curriculum. Dr. Samuel C. James, of Kansas City, Mo., was elected president, Dr. Fred C. Zapffe, of Chicago, secretary-treasurer. The next meeting will be held in Pittsburg, in 1906.

GENERAL.

Meningitis in Connecticut.—On account of the development of a case of cerebrospinal meningitis in the Pomfret School for Boys, in Pomfret, Conn., school work has been suspended for at least a week, and nearly all the 115 students have been sent to their homes at the request of their parents.

Mr. Spreckels Must Pay the Doctor.—The Vienna papers announce that the suit, pending since last August, brought by Dr. Gans, of Carlsbad, against Rudolf Spreckels, for fees in connection with services rendered, when Mr. Spreckels was suffering from appendicitis, has been decided in favor of Dr. Gans.

Predetermination of Sex.—The question of the predetermination of sex came up for discussion at the Medical Congress at Wiesbaden, on April 17, and Dr. Weill asserted that diet greatly influenced the embryo. Experiments with animals showed that a predominance of carbonaceous foods tends to the development of males and of albuminous foods to females.

Hospital Gets $5,000.—The executors of the estate of Adrian Iselin have notified the treasurer of the New Rochelle Hospital that they will soon turn over to that institution $5,000. The gift is the first that has been announced since the banker's death. Mr. Iselin set aside $300,000 in his will for charitable bequests, and indicated privately to the executors the institutions to be benefited.

Cats Have Diphtheria.—The Orange (N. J.) Board of Health is preparing to investigate the cats in the city with a view to preventing the spread of diphtheria. A number of cats are known to have the disease. Many of these animals are the pets of children. Dr. G. Herbert Richards, president of the Board of Health, advises all householders owning cats that have sore throats or apparently have difficulty in breathing to consult a physician at once.

Meeting of American Antituberculosis League.—The American Antituberculosis League met in Atlanta, Ga., on April 17, and was welcomed by Dr. George Brown of that city, president of the league. The convention assembled in the Hall of Representatives at the State Capitol, with an attendance of about 490 physicians. Delegates came from nearly every part of the United States, east of the Rocky Mountains, and there are several prominent representatives from European centers.

Labrador Medical Mission.—When Dr. Wilfred T. Grenfell, the English physician, who is known as the "missionary of the deep-sea fishermen," goes back to Labrador next month, he will take with him on the yacht Strathcona two young women who have done settlement work for several years, about $60,000 contributed by the larger cities, and an encouraging contribution from Andrew Carnegie for the establishment of loan libraries along the coast of Labrador. The young women who have volunteered to go to this remote region are Miss Clara Koonz and Miss Isabel Harris. They not only volunteered their services to the Labrador mission, but propose to bear the expenses themselves. Miss Harris has for years been giving her time to settlement work exclusively, and is now connected with the Protestant Episcopal Church of the Land and Sea, Henry and Market streets, New York. Miss Koonz is connected with the Tenement House Commission, and is regarded as an expert in the industrial system. Both are now preparing for the long journey to Labrador, and before going propose to organize a permanent Ladies' Auxiliary in this city which will aid the mission from time to time. At a dinner in honor of Dr. Grenfell at the home of Stephen Baker, 8 East Seventy-eighth Street, New York, a group of well-known ministers and educators, headed by the Rev. Van Dyke, formed a permanent organization to aid Dr. Grenfell's mission.

Tuberculosis in Trains.—Surgeon-General Wyman, of the United States Marine Hospital Service, has called a meeting of the executive officers of the state boards of health, for May 15, in connection with the meeting of the National Association for the Study and Prevention of Tuberculosis. He has received numerous letters from health officers on this subject, especially on that branch of it which relates to the spread of the disease by travelers on the various railroads. Dr. S. J. Crumbine, secretary of the Kansas State Board of Health, thus writes: "The geographical position of this State is such, lying immediately east of the health resorts of the Rocky Mountains, that it could probably be asserted that there is scarcely a transcontinental train going West the year round that does not carry its one or more passengers afflicted with tuberculosis, seeking the life-giving and healthful resorts of Colorado, New Mexico and Arizona. With little or no convenience for the proper disposal of the expectoration of these people, it must be self-evident that these cars are in a chronic state of infection. Time and again I have personally observed a consumptive in a day coach. These people being of low vitality and afraid of draughts and cool air while traveling require that the coaches be closed, which adds to the danger of infection to their fellow-pasengers." It is considered by the scientists who expect to be in attendance as especially fortunate that while the meeting is in progress they will have unusual facilities for studying the latest improvements in the ventilation and sanitation of railway passenger cars. For simultaneous with the meetings of the health specialists will be the meeting of the International Railway Congress, with its great exhibition of cars and railway appliances. Numerous tests will be made under the direction of health officers from different parts of the country, to demonstrate how quickly and how completely the air in passenger coaches can be changed, it being the already expressed opinion of scientific men that public health demands an entire change of air at least once in every six minutes.

The National Antituberculosis Meeting.—The plans for the annual meeting of the National Association for the Study and Prevention of Tuberculosis to be held in Washington, May 18 and 19, under the presidency of Dr. Edward L. Trudeau, are now rapidly ap-

proaching completion. At the general meeting of the association to be held on the morning of May 18, addresses will be made by the president and by the two vice-presidents, Drs. William Osler, of Baltimore, and Hermann M. Biggs, of New York. At a general meeting to be held on the evening of May 18, an address will be made by Mr. Talcott Williams, of Philadelphia, to be followed by the business meeting of the association. The afternoon of May 18, and the morning and afternoon of May 19, will be given up to meetings of the sections, of which there are three. The papers already announced promise an interesting and valuable series of meetings. The Sociological Section in addition to the report by the chairman will offer papers on "A Working Program for Associations for the Prevention of Tuberculosis, National, State and Local," by Edward E. Devine, of New York; "Progress of the Sanatorium Movement in America," by William H. Baldwin, of Washington, and "Infection in Transportation," by Dr. H. M. Bracken, of St. Paul. The climatological and clinical program in addition to the address of the chairman, includes a number of reports and papers of particular significance. The report of the committee on clinical nomenclature under the chairmanship of Dr. Vincent Y. Bowditch, of Boston, will be discussed by Drs. Welsh, Trudeau, Stengel and Vaughan. From a practical point of view there is probably no subject upon which agreement is more necessary than this and an authoritative pronouncement by a body of the authority of the national association is greatly to be wished. The report of the committee on early diagnosis, under the chairmanship of Dr. Arnold C. Klebs, of Chicago, will be discussed by Drs. Osler, Janeway, Knight and Babcock. The rôle of climate in the management of tuberculosis is also the subject of a committee report by Dr. C. L. Minor, of Asheville, the chairman. A symposium on the sanatorium treatment of consumption also promises matter of interest. Other papers are expected by Drs. C. L. Greene, of St. Paul; William S. Halstead, of Baltimore; C. F. Gardner, of Colorado Springs; Edward O. Otis, of Boston; S. A. Knopf, of New York; J. A. Wilder, of Denver; H. B. Loomis, of New York, and William Porter, of St. Louis. The pathological and bacteriological section will, naturally, be strictly technical in scope. An introductory address will be made by Dr. William H. Welch on "Channels of Infection in Tuberculosis," which will be of general interest and value. The final program of the meeting will be complete in the course of a week. Invitations have been sent to the various antituberculosis organizations in the United States to be represented by delegates at this meeting and a large attendance is expected. The printed papers resulting from a gathering of such authority as this should afford invaluable material in the campaign of education which is now being pushed thoroughout the country.

Fleas and the Plague.—That a commission of eminent scientific men, nominated by the Imperial Government and the greatest learned societies and institutions, should be appointed to sit in judgments on the flea seems at a first glance merely a piece of Gilbertian humor. Yet the trial of the flea, and his crimes in connection with the spread of bubonic plague in India, will be one of the chief tasks of the advisory committee of scientists just nominated by the English Government, the labors of which will probably extend over two or three years. Dr. Martin has gone to India to arrange for investigations on the spot and the committee will deal with the results in England. A quarter of a million people died of plague in India in January and February this year, and the disease, which in different parts of the world becomes most violent at different seasons, is most active in India in March. The total plague deaths in India for the epidemic years beginning with 1896 were as follows:

1896 (last half)	2,288
1897	55,548
1898	117,733
1899	135,996
1900	92,106
1901 (first half)	121,730

Thus the deaths in two months of 1905 have been nearly double those of the worst year of the epidemic.

It has long been known that the rat has a close connection with bubonic plague. He shares with man the honor of providing a favored nesting place for the bacillus of the disease. Often a terrible outbreak among humankind has been heralded by a previous epidemic among rats. It was easy to see how rats might be first affected. Disease-producing matter might well get at them in drains and underground holes, and so produce an outbreak while men remained safe. But if so, how did the bacillus get from the rat to the human population? A number of scientific investigators have lately come to the conclusion that the intermediary is the common flea. Dr. H. N. Choksy, who is in charge of the Bombay Plague Hospital, said in a lecture a few weeks ago, that the annual recurrence of epidemics has rendered the people callous and indifferent. The spread of the disease is due to the neglect of sanitary precautions by the ignorant poor. The prompt and early recognition of the plague is of vital importance to the patient and his family. It usually enters the system through the apparently unbroken skin, but the mucosa of the mouth, nose and throat may sometimes act as channels of infection. It is, therefore, important to cover all abrasions of the skin during epidemics. Since compulsory sanitary measures have been abandoned no voluntary effort at self-preservation is made by the people who have become fatalists. The experience of seven previous epidemics of plague has been of service, but as yet no effective means of stamping out the disease have been adopted. Plague is an infectious and contagious fever of limited duration, characterized by the appearance of enlarged and swollen glands (buboes) in various parts of the body and accompanied by grave disturbance of the nervous and circulatory system, its greatest fatality is during the first week. Usually the disease is contagious only, but under certain conditions it is infectious—pneumonic plague is the most deadly and is highly infectious. The diagnosis of the disease is easy. The sudden developing of high fever, tender, enlarged or swollen glands, faltering speech and slight mental disturbance occurring simultaneously in an otherwise healthy person point to the plague. It is a fallacy to use germicidal remedies in plague merely because it is a germ disease, they have all proved inefficient. Light and air are the plague's greatest enemy.

Two serums are potent if applied early in the disease, the Lustig's serum which was abandoned in India before conclusive results had been reached, and the Yersin-Roux's serum which is prepared at the Pasteur Institute of Paris. Dr. Choksy is convinced that either of these, if properly used, will effect a cure in sixty per cent. of non-septicemic cases.

OBITUARY.

Dr. William D. Small, Supreme High Priest of the National Lodge, Knights of the Golden Eagle, died at his home, at Lewiston, Me., April 13, aged forty-one

years. He was formerly president of the Maine Academy of Medicine and Science.

Dr. N. Newlin Stokes, of Moorestown, N. J., died last Wednesday, aged seventy-two years. Dr. Stokes was graduated from the Jefferson Medical College, this city, in 1854. He took an active interest in the affairs of Moorestown. For many years he was a member of the Board of Managers of the State Asylum for the Insane at Trenton, and was also an active member of the Burlington County Medical Society. He was president of the Moorestown Water Company and a director of the Moorestown National Bank and Burlington County Safe Deposit and Trust Company.

SOCIETY PROCEEDINGS.

NEW YORK PATHOLOGICAL SOCIETY.

Regular Meeting, held January 11, 1905.

The President, Otto H. Schultze, in the Chair.

A Simple Method of Filtering Agar.—Dr. J. Finley Bell demonstrated a method for the rapid filtration of large or small quantities of agar. The apparatus was exceedingly simple, consisting of a cylindrical glass bulb with perforations over which was slipped a Schleicher and Schüll thimble of filter paper of the type used in the Soxhlet fat extraction apparatus. The whole was covered with a cylindrical glass protector or slightly larger than the bulb. The open end of the protector was covered with several layers of gauze and some absorbent cotton to strain out the coarse particles. The other end was attached to a piece of heavy rubber tubing and connected to a filter flask. A vacuum was produced in this flask by means of an ordinary Bunsen filter pump. If the filtering apparatus is then moistened with hot water and dropped into the vessel containing the hot agar, and the pump started, filtration will take place rapidly, about a liter being filtered in three or four minutes. The advantage of the apparatus consists in the fact that no cooling takes place until the agar has passed through the filter, whereas with the ordinary method of filtering agar it is difficult to prevent the agar from thickening or becoming solid in the filter. The reaction can finally be very easily adjusted in the hot agar after filtering.

Cyst of the Kidney.—Dr. Richard Weil presented a specimen of a cyst of the kidney. This was originally described as "malignant cyst of the kidney" by Strübing. It is actually an example of a rare, yet important type of the adrenal tumors of the kidney. The specimen was removed at operation by Dr. Kämmerer, of the German Hospital. The patient had previously been exhibited at many societies, and, although the cystocoscopic findings pointed indubitably to the presence of a renal disease, the exact pathological condition was never diagnosed. The same failure marked all the other cases recorded in the literature, in which the clinical diagnosis ranged from echinococcus cyst of the kidney to cyst of the ovary. Yet, as Strübing says, there are certain fairly characteristic symptoms which should really serve to differentiate it. Pathologically, it has been exactly duplicated by seven other undoubted cases in the literature; yet there are numerous other descriptions of renal cystic tumors, both in the older and in the more recent literature, which most probably belong in the same category, although the genesis of the cyst from an adrenal tumor was not identified. And that it could easily escape such identification was illustrated by Dr. Weil from the specimen in hand. It presented a large monolocular cyst, partially subdivided by fibrous septa. Roughly, it had the shape of the kidney. The wall was formed by a dense white tissue of varying thickness. The content was a thick, dark brown, grumous fluid, which contained leucocytes, red cells, epithelia, blood pigment, and cholesterin. Closer examination revealed the presence of two inconspicuous strands of a different tissue, one of which lay in the capsule, the other in one of the septa. Both of these strands were inclosed in a distinct fibrous capsule. Their tissue was firm; their color, whitish yellow. On microscopical examination they were found to be adrenal epitheliomata, presenting the characters of this tissue as it appears after it has undergone malignant degeneration. In some places it was with difficulty distinguishable from cancer; in others, it was distinctly of the structure of the adrenals. The wall of the cyst itself presented the remains of the kidney—glomeruli and tubules imbedded in a dense mass of connective tissue. Certain details of the clinical history were adduced by Dr. Weil as of interest, not only for themselves, but as throwing light on the growth and development of the tumor. The patient was fifty-six years of age. Up to the age of sixteen he was perfectly healthy. At that time he passed bloody urine almost constantly for two weeks. He had no pain and no other evidence of disease. From that time until 1899, a period of thirty-five years, he was in every respect perfectly well. In 1899, at the age of fifty-one years, he again had an attack of hematuria which persisted for several weeks, and left him quite weak and anemic. Since then he had had recurrences every year. He entered the German Hospital in June, 1904. He was markedly anemic, blood count less than 3,000,000; hemoglobin about 40 per cent.; and he looked cachectic. His abdomen was markedly distended by the cystic fluctuating tumor. His urine contained blood, which cystoscopic examination showed to flow from the left ureter. Puncture of the cyst yielded a bloody fluid. Since the removal of the tumor he has steadily gained flesh and strength and the anemia has disappeared. The remarkable facts are, the existence of the tumor for a period of forty years; its cystic character; its non-malignancy, except as a cause of anemia. The other cases recorded in the literature were exactly similar to this in the pathological findings. Clinically, they differed chiefly in the presence or absence of blood in the urine, depending upon the communication of the tumor sac with the pelvis of the kidney. In those cases in which there was no hematuria, puncture of the kidney cyst always yielded a fluid of the same character, containing blood pigment and cholesterin.

Dr. F. C. Wood, in the discussion, said that this very interesting cyst of the kidney reminded him of a case he had seen six or seven years ago, which corresponded to Dr. Weil's description of the case of hemorrhage into a suprarenal tumor, with the formation of a large cyst. The cyst he had seen was about the size of a child's head, lined on its inner surface with shaggy clots and a few projections containing suprarenal tissue but no smooth walls. It was, therefore, of a slightly different type, probably hemorrhagic cyst with softening of tumor tissue.

Dr. Weil said they were clinically of some importance. All described cases had been given the wrong diagnosis. Many had been considered echinococcus cases, others as cases of cyst of the ovary. This tumor simply produced pressure symptoms; the content was invariably bloody with cholesterin from

breaking down of the cells. That gave one a hold on the diagnosis.

A Case of Tricuspid and Mitral Stenosis.—Dr. Bond Stow presented a specimen showing tricuspid and mitral stenosis, together with the lungs showing very extensive hemorrhagic infarcts. He said that since one seldom saw a marked case of tricuspid stenosis with such extensive sequelæ throughout the lungs, he took pleasure in presenting to the Society these specimens. He afforded a view of the heart from the right auricle looking toward the right ventricle, demonstrating the tricuspid valve with its three cusps joined together for a distance of 2.5 cm. from the base of the valve to its closing margin. The opening through the tricuspid valve measured about 1.5 cm. in diameter. The right ventricle measured at the apex 4 mm. and at the base of the tricuspid valve, 1.5 cm. The right auricle was very extensively dilated and its walls averaged about 3 mm. On the right auricular appendix were several thrombi, one being about the size of a hickory nut. Looking from the left ventricle through the mitral valve into the left auricle, Dr. Stow demonstrated a mitral stenosis that scarcely admitted the tip of the smallest finger. Along the base of the anterior flap of this valve was a firm, stony hard, extensive, calcareous deposit in the form of a ridge fully 2.5 to 3 cm. in length. The left ventricle did not appear to be either hypertrophied nor dilated. The left auricle was much dilated and its walls measured about 3 mm. in thickness. The left auricular appendix was filled with thrombi. At the apex of the left lung was an old infarct which had partially undergone necrosis and was more or less cavernous and filled with a foul smelling, purulent detritus. There had been firm pleuritic adhesions over this infarct. In the right lung, along the anterior border of its upper lobe, was a large recently formed hemorrhagic infarct. The entire middle lobe was one hemorrhagic infarct. About four-fifths of the lower lobe likewise was one large, apparently recently formed infarct. There had been complete thrombosis of the external jugular on the left side and also a canalized thrombus was found in the superior vena cava. The right kidney also showed innumerable hemorrhagic infarcts. All of these the speaker believed were due, not to embolism, but to autochthonous thrombosis, owing to the favorable circulatory conditions brought about by the tricuspid stenosis, all thrombi found in the blood vessels being firmly adherent to their walls. The liver and other internal organs showed the ordinary appearances of cyanotic induration. Dr. Stow also demonstated a specimen from his recent post-mortem work, showing the anomaly of four cusps to the pulmonary valve, which condition had had no effect upon the welfare of the patient and had proven a mere post-mortem disclosure.

Embolism with Thrombosis of the Left Middle Cerebral Artery.—Dr. M. G. Schlapp presented a specimen showing embolism with following thrombosis of the left middle cerebral artery after ligation of the common carotid. Dr. Schlapp said that he had Dr. James Johnston to thank for this specimen. The patient in question was a man, forty-eight years old. Three years previous to his admission into the hospital, an epithelioma began to develop on the lower lip. Some time after, the submaxillary glands and the surrounding areolar tissue became involved, so that when he was seen by the surgeon the lower jaw and submaxillary tissue were diffusely invaded, so much so that the ligation of the common carotid was advised in order to check the growth. This was done. The carotid was ligated about two inches below the point where the common divides into the external and internal carotids. Thirty-six hours after the ligation the man suddenly became paralyzed on the right side (hemiplegia) and lost consciousness. Twenty-two hours after the onset of the hemiplegia, exitus lethalis took place. At the autopsy the following condition was found. The common carotid was opened below and above the ligature to the point where it divides into the external and internal carotids. It was found that a thrombus completely filled the common carotid from the ligature up to the division of the vessels and that it partly extended into the internal carotid for about 2 cm. Furthermore, it was seen that the thrombus did not completely fill up the internal carotid, but that an open space was left extending from the external carotid (which contained no thrombus) into the internal carotid. As was stated above, the thrombus extended about 2 cm. into the internal carotid from the common, and above this the internal carotid was clear up to the point where it passed into the middle cerebral artery. The latter was completely thrombosed. The upper end of the thrombus which protruded into the internal carotid, was torn and irregular. The smooth dome-shaped point which is invariably found at the end of a thrombus in a large blood vessel was missing. The explanation of the case was as follows: After the common carotid was ligated, a thrombus formed above the ligature, growing to the point where the common divides into the external and internal carotids. Here it grew some distance, but not into the external carotid because this vessel was filled with fresh flowing blood coming through collaterals from the opposite external carotid and flowing back into the internal carotid. This stream of blood from the external carotid into the internal carotid washed off the end of the thrombus extending into the internal from the common carotid, by which it was washed up into the middle cerebral artery closing up this artery and causing sudden hemiplegia and unconsciousness and later death. Encephalomalacia was distinctly seen in the area supplied by the middle cerebral artery. Dr. Schlapp wished to show this case to point out the danger in ligating the common carotid without ligating at the same time the external carotid.

Variations in Virulence and on Spontaneous Agglutination.—Dr. Edna Steinhardt read a paper on the above subject. The variations in virulence studied were those obtained by passing bacteria through bactericidal sera, following the methods of Ainley-Walker (*British Medical Journal*, 1902, and *Centralblatt für Bakteriologie*, 1 Abt. Orig. Bd. xxxiiii, 1903). The effect on the toxin production was also noted by growing the organisms in antitoxin. The experiments fell under three heads: (1) Effect on the toxin production of diphtheria bacilli by growth in antitoxin. (2) Effect upon the virulence of dysentery bacilli by growth in inactive horse serum, normal and immune. (3) Effect upon typhoid bacilli of repeated passages through bactericidal horse serum.

1. In the first experiments two varieties of diphtheria bacilli were grown for fifteen generations in diphtheria antitoxin, controls being kept in broth. They were then tested for toxin production, and in both cases the serum-grown strains produced less toxin than the controls. From these experiments it can only be stated that there was no specific increase

in toxin production caused by growth in antitoxin. The antitoxin in which the bacilli had been grown lost markedly in protective value due to direct neutralization by the toxin produced.

2. Dysentery bacilli of the mannite-fermenting type were grown in inactive, immune and normal horse sera. Two dilutions of each were used, strong and weak, as different results had been obtained by other workers with different dilutions, thus suggesting the possibility of over stimulation of the bacilli, causing decrease instead of increase in virulence. The cultures were grown for five weeks and then tested. It was found that all the strains had lost in virulence except that grown in normal weak serum; this had retained its virulence. To control these results a second series were grown for twelve generations in immune serum, strong and weak dilutions; that grown in strong lost markedly in virulence, about one-half; while that in weak retained its virulence.

3. Typhoid bacilli were passed through lytic serum 43 times and then tested. They had no increased serum-resistance in vitro, but had doubled in virulence. To control these results, from the original stock a culture was again passed through lytic serum ten times. In this instance there was greatly increased serum-resistance in vitro and the virulence was sevenfold. .The serum-resistance in vitro was found by reactivating experiments to be due to increased resistance to immune body and not to resistance to complement, as found by Erich Cohn (*Zeitschrift für Hygiene,* Bd. xlv). Two other series were done from the same stock culture, and in exactly the same manner; one series five times, and one ten. In neither instance was there increased serum-resistance in vitro; the virulence was not tested. Thus in four parallel experiments, serum-resistance was obtained only once, and virulence was increased in much greater degree in one case than in the other.

From the results obtained in these experiments, the following conclusions may be drawn: (1) If there be a specific reaction between the receptors of the bacillus and the amboceptors of the serum, a certain proportion would be necessary to cause the overproduction of the bacillary receptors, as too great a number of amboceptors might overwhelm the bacillus, thus causing loss of virulence. This may be the reason for the irregular results obtained, or these results may be due to a non-specific action of the serum which, up to the present, is not understood. (2) In four series of passages of typhoid bacilli through bactericidal horse serum, under the same conditions, uniform results were not obtained. A definite reaction cannot in any given case be predicted. In some instances the bacilli surviving after the action of the lytic serum are the more resistant ones. The negative results may be due to the fact that in some instances the bacilli may possibly be protected from the serum mechanically, by being in the center of an agglutinated mass, or it may be that the bacillus must be in a certain condition to react, as some animals of the same species are more easily immunized than others. Spontaneous agglutination has been noted a number of times in serum-grown organisms by other workers. In these experiments, it occurred in the series passed forty-three times through bactericidal serum, after the twentieth passage. Over twenty generations on agar retained this characteristic. Returning to the stock typhoid culture, which grew occasionally with a slight pellicle, it was found possible by repeated plating to separate from it two variations, one giving a uniform cloudiness, the other agglutinating spontaneously in broth. This spontaneous agglutination is not an agglutination in the specific sense of the term, as from an agglutinating typhoid serum the agglutinators absorbed the same number of specific agglutinins as the non-agglutinating stock culture. The spontaneous agglutination continued through a number of generations, but by subculturing from a shaken broth culture, in a very few generations, this variation grew in broth with the original uniform cloudiness. Further work was done on two unidentified specimens isolated by Dr. Goodwin, one from water, the other from the intestinal tract. Both these organisms agglutinated spontaneously when transferred from agar into broth. In broth they produced cloudiness and formed a pellicle. Here it was also possible to separate variations, one giving only pellicle, the other, clouded broth with very slight pellicle production.

These results suggest that in cultures in which spontaneous agglutination occurs two variations exist in the original culture: one tending to grow in clumps, the other diffusely, and that under certain conditions the one type predominates, under other conditions the other type.

Dr. C. W. Field, in the discussion, said that the point of spontaneous agglutination was very interesting, and might throw light on the meaning of the reaction of agglutination. Dr. Steinhardt had said in her paper that it was not specific agglutination, but under the microscope it was practically impossible, so far as he had seen her preparations, to tell the difference between these and organisms agglutinated by specific serum. They had the same appearance, the same large clumps, and clearness of the field, that are found in sera of high specificity, and they were intensely interesting from that standpoint. The presence or absence of agglutination might not be an entirely specific reaction of the serum on the organism itself, but might be due to variations in the ability of the organisms to absorb certain constituents from the media.

Dr. E. Libman said that from the few observations he had made regarding spontaneous agglutination he considered also that it could at times be found apart from any action of serum. He had experimented with a paracolon culture—Dr. Cushing's bacillus. In that culture, after it had been grown for several months in ordinary bouillon, spontaneous agglutination occurred regularly after each transplantation. Jaeger in his agglutination work could not use some cultures because of spontaneous agglutination in salt solution. Dr. Libman thought pellicle formation depended to a great extent on the presence or absence of a carbohydrate content from which the organisms could derive oxygen. An organism which would grow with marked pellicle formation without sugar would often grow without or with a slight one if a carbohydrate were present which it could use. From the experience of the speaker he would not feel justified in saying that a distinct relationship existed between pellicle formation and spontaneous agglutination.

Dr. Steinhardt said that she thought that if Dr. Libman had shaken his broth culture of the paracolon bacillus, had then plated it, and had picked out the translucen thin colonies, repeating this several times, he would have gotten a non-clumping culture again from his spontaneous agglutinator. She had done so and had obtained a non-clumping culture. As

to culture media, the same broth was used in both cases. By separation one variation would produce pellicle and the other not. This was not due to a difference in sugar content because exactly the same medium was used.

Dr. Libman said he had plated the paracolon bacillus out a great many times, had tested many colonies, and had got spontaneous agglutination in bouillon subcultures regularly. He was very anxious to get it to grow diffusely but could not succeed.

Dr. Field said it was not due to serum present. In one case it was not due to serum especially as the serum did not come in contact with the organism.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regular Monthly Meeting, held January 7, 1905.

The President, Augustus Knight, M.D., in the Chair.

Radiotherapy in Surgery, a Plea for Pre-operative Radiotherapy.—This was the paper of the evening read by Dr. William J. Morton.

Forms of Radiation.—Dr. Morton said that the recent development in the study of the radiation has worked a revolution, not only with regard to radio-activity but also with regard to many fundamental problems in physics. The atom has come now to be considered no longer as the smallest portion of matter, but is itself composed of smaller particles which are probably negative units of electricity. These corpuscles of which matter is composed, constitute the alpha rays and also the beta rays, while the X-rays and the gamma rays are more properly vibratory manifestations in the ether, such as the rays of light. The corpuscular rays penetrate material objects somewhat as fine particles run through a sieve. The other rays, however, have their penetrative power from their vibratory quality.

Pathological Effects.—The pathological effects that may be produced by radiations are due to the fact that in the skin there is a conversion of their energy into heat and other irritative forms of energy which if too great may easily produce burns. These pathological effects are seen most clearly in the walls of the blood vessels, which become thickened, and by so doing, lessen the nutrition of the part and consequently make it more liable to injury on subsequent occasions. It is clear, however, that the connective tissue suffers most of all the tissue types and it is this that is most readily destroyed.

Development of Technic.—There is a disposition on the part of experts in radiotherapy to use less intensity of the X-ray than at first. There seems to have been at first a general impression that a certain amount of cauterization was necessary in order to secure the full effect of the rays. As the result, severe dermatitis was often allowed to develop in the course of treatment. Now a mild dermatitis is considered the absolute limit of safety. When the X-rays were first employed, it was considered that they should be used for a long time and that indeed the longer they were used without absolute direct injury, the more absolutely curative was their effect likely to be. It has now become practically the rule to employ the X-rays for about six weeks and then wait for a time in order to observe results. It is perfectly possible to carry on treatment with the X-rays, that seems to be beneficial for a time, to a harmful extent. Any one with considerable experience in the treatment of malignant growth by means of the X-rays has seen cases in which after the cure of epitheliomata the scar tissue that resulted has broken down, making the condition worse than before with a reassertion of malignancy usually with increased virulence.

Mild Treatment.—The X-rays must be used gently if the best results are to be obtained. For this the tube should not be nearer than 9 or 10 inches from the patient and should be employed not oftener than about three times a week for fifteen minutes at a time. If the patient bears the treatment well, this should continue for six weeks, but should be discontinued if signs of dermatitis result. On the other hand, where at the end of three weeks there are no signs of dermatitis, the length of the exposures and their frequency may be increased under proper circumspection. If this technic is followed, burns do not result and one avoids the serious objections to the use of the X-ray.

Illustrative Cases.—Dr. Morton exhibited a patient, aged fifty-seven years, in whom an excellent symptomatic cure had been obtained in an extremely difficult case of epithelioma of the face which had lasted for ten years and had involved the cheek and eyelids rather widely. The patient first noticed a small purple patch on the cheek just in front of the cheek bone which gradually became larger and scaly. After some time an open ulcer resulted which spread until it was half an inch in diameter. An extensive operation for its removal was done in the hope of going wide of all cancer tissue. Malignant ulceration of the edges of the incision occurred, however. The lower lid became involved in a rapidly progressive ulcer, which threatened to invade the ocular tissues. A probe could be made to penetrate rather easily some distance into the orbit. As the result of two months of treatment, all the induration had practically disappeared and the ulcer was scarred over with good cosmetic results. Undoubtedly, in this case, if the use of the X-ray had been continued after cicatrization had taken place, the scar would have broken and the result would have been inevitable failure. Many failures are due to this overzeal in the use of the X-rays.

Lingual Cancer.—This occurred in a physician, forty-eight years of age, who noticed a rather deep, punched-out ulcer at the base of his tongue. He saw some of the best surgeons in the country who advised immediate operation. He was treated, however, by means of radium and after a time the ulcer filled up and the tendency to further malignant degeneration, for there seemed no doubt of its malignancy, disappeared. In this case, the patient being a physician, and the well-known tendency of malignant disease of the tongue to run a rapid course being thoroughly appreciated, he was asked to take the risks in the case himself. This he did with some misgivings, but with all the more confidence, because he felt that the use of active measures, far from making subsequent operation more difficult, would rather add to the chances of ultimate surgical success. This would seem to be the way in which this whole subject of radio-activity as a help in surgery must be considered.

X-ray for Sarcomata.—A very large number of sarcomata are now being treated by means of the X-rays. A very few have been cured though most have not been benefited in any permanent way. Just what cases are likely to be benefited it is impossible to determine. The way of relief in most cases is not known. In some cases tumors as large as a child's head have been made to disappear after all other methods of treatment have failed. In many cases of sarcoma distinct benefit is derived from exposure to the X-ray and there seems to be an intermission in the growth of the tumor, though recurrences are the rule.

Mammary Carcinomata.—As a rule, of course, malignant tumors of the breast demand removal. It is well known, however, that in most of these cases, recurrences take place in spite of extensive excision. Cancer cells have invaded the tissues so deeply through the lymphatics that it is impossible to secure their obliteration and the consequence is inevitable recurrence. It is these outlying cancer cells in the lymphatics well beyond the boundaries of the cancer itself, that may be reached by radio-active remedies. If the X-rays are employed for six weeks before operation and then just after, the patient's chances of cure are distinctly greater than would otherwise be the case. The X-rays are not employed for destructive purposes, but just short of dermatitis. The good effect of this suggestion may be seen in the way cutanous cancer clears up under treatment and also from the success in bringing about the disappearance of the current nodules of cancer after operation.

Question of Slow Healing.—It has been objected that the tissues do not heal so well after treatment by radiation, but even if this were true, it would be better to have slow healing than to have recurrence of the malignant growth. Gangrene is said to occur more easily after exposure to the X-rays, but this is evidently due to the effects of technic at the time of the operation. It would seem that the ideal treatment for malignant growth would be a combination of radio-active influences with surgery.

No Cures of Malignant Disease.—Dr. William B. Coley said that notwithstanding the number of reports of cures that have been made, it is very doubtful if there is any justification for declaring the permanent curability of sarcomata by means of the X-ray. All the early successful cases have shown eventual recurrences with rapid progress which the X-rays are totally unable to affect favorably. A large sarcoma of the femur reported as cured, later showed enlargements of the inguinal gland with metastasis to the mesenteric gland and to the internal organs with fatal results. The very large tumor of the neck, whose disappearance had been brought about by means of the X-rays, was followed later by sarcoma of the mesentery and then of the inguinal gland. Altogether some half dozen remarkable cases of apparent cure of sarcomata were reported, but all of these died within the year after the beginning of the X-ray treatment.

Delay of Fatal Issue.—In one case, seen first three years ago, the sarcoma proved to be of the round-cell variety involving the femur, and amputation of the hip-joint was advised but refused. Pathological examination showed that there was no doubt of the diagnosis. This improved rapidly under the X-rays. The leg decreased very much in size, the patient gained in weight, and in general a cure seemed to have been effected. After a time, however, metastasis took place to the pectoral region and the right inguinal gland became extensively involved. The X-rays failed to bring about improvement in these, but under injections of erysipelas toxins, the glands broke down and gradually disappeared. At the present time, there is no visible evidence of the presence of sarcomata, though there are still some sinuses. The patient can scarcely be said to be cured, however. This case has lasted longer than any other case of sarcoma of the femur that Dr. Coley has ever seen.

Inevitability of Recurrences.—A large spindle-cell sarcoma of the abdominal wall disappeared for a time under the influence of the X-ray, but recurrence took place with an eventual fatal issue from the malignant disease. In this case the successful result with the X-rays was obtained after the mixed toxins of erysipelas and *Bacillus prodigiosus* had for a time caused some improvement yet later failed to bring about any reaction. In nearly the same way, however, the X-rays seemed to lose their power to arrest the malignant disease. In the case of cancers of the breast, recurrent nodules can nearly always be made to disappear by means of the X-rays, but in spite of careful continuance of the treatment, these return.

Failure in Prophylaxis.—When the X-rays were first introduced as a remedy for malignant disease, Dr. Coley was hopeful that they would prove an excellent prophylactic against recurrence after operation. He is now much less hopeful than he was two years ago in this regard. He has seen metastases occur while the principal tumor was under treatment and showed every sign of getting better. In fact, in some cases, exposure to the X-rays seems to add to the virulence of the malignancy of outlying portions of the cancerous growth. In cancer of the lip Dr. Coley has seen the epithelioma become hopelessly inoperative from metastases while the X-rays were being employed with apparently good effect. Undoubtedly the X-rays do cure small superficial tumors, but individual cases are not improved and failures have been reported even under what seemed most favorable circumstances. Dr. Coley considers that the X-rays should never be recommended in easily operable cases. Their place, if any, is for inoperable cases and for recurrences, for now there is no surgeon who cares to operate in these cases. It is not to be expected that they will produce absolute cures, but they will give the patient of certain severe symptoms relief and undoubtedly lengthen life in many cases.

Dr. John B. Walker said, in continuing the discussion, that he thought he had seen some good from the use of the X-rays before operation in preventing recurrences from outlying portions of cancer tissue. This subject is, however, a very difficult one to decide and will require much more experience than is available at the present moment.

Dr. Deaks said that undoubtedly much harm has resulted from the use of the X-rays in the hands of inexperienced persons. With proper care, good results can be obtained, but the experts in X-ray work are needed for this.

Cancer in X-ray Burns.—Dr. Morton, in closing the discussion, said that a certain number of cases of cancer developing in X-ray burns have been reported. This did not indicate, however, at all that the X-rays were likely to foster malignancy and the reports of such cases are very meager. It seems probable that the only effect produced is a devitalization of tissue which predisposes to the invasion of malignant disease. After all it must not be forgotten that malignant tumors occur as a consequence of trauma and of other conditions which produce lower resistive vitality. Beyond this there seems to be no specific effect of the X-rays in the production of malignant disease.

Fluorescence and the X-rays.—Dr. Morton has found for some time that the favorable effects of the X-rays are much increased if some substance is administered to the patient which causes the presence of the phenomenon known as fluorescence in the patient's tissues. For this purpose Dr. Morton employs fluorescein or at times quinine. Recent reports from France show that five patients treated in this way in conjunction with the X-rays have remained cured for a year. In Dr. Morton's own experience, patients suffering from recurrences of breast cancer or subsequent cancerous enlargement of glands, are especially likely to

be helped by this means. When the malignant process shows a tendency to generalize, then the X-rays, no matter how employed, do not put a stop to the process. There is, however, no known method of treatment that will effect such a condition. The pre-operative use of the X-rays, however, seems to be the best possible method of preventing this generalizing process. It acts quite as favorably for the patient after operation as do the modern methods of sepsis and antiseptis for his preservation from postoperative complications. Undoubtedly this is the most promising field of X-ray work at the present time.

X-ray Burns and Malignant Disease.—Dr. Coley said that undoubtedly there are a certain number of cases in which cancer has been directly produced by negligence in the use of the X-ray. A prominent physician of Western New York, who had for several years employed the X-rays in the treatment of others, developed carcinoma in both hands. The pathological examination of the tissues was very carefully made by Dr. Welch, of Baltimore, who pronounced them typically malignant. In this case, the occurrence of the malignant disease in both hands simultaneously seems to place the question of etiology beyond all doubt and makes it clear that the long-continued irritation of the X-rays may of itself suffice to produce cancer. Cases of a similar nature are gradually finding their way into the literature.

Psoriasis and Cancer.—Dr. Royal Whitman called attention to the fact that the superintendent of the Massachusetts General Hospital had developed cancer in both hands, following a prolonged continuance of lesions of psoriasis. It seems evident that it is not some specific effect but the lessened resistive vitality consequent upon long-continued irritation which predisposes to cancer.

Dr. Morton, in closing the discussion, said that such accidents are due to the improper use of the X-rays and that the use of any, even the best remedial agent, may prove less harmful. The abuse of a good thing cannot be urged against its use in a proper way.

NEW YORK OBSTETRICAL SOCIETY.

Regular Meeting, held January 10, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

Cases of Extra-uterine Pregnancy with Atypical Symptoms.—Dr. Herman J. Boldt demonstrated the specimens and related the histories of the four following cases: *Case I.*—Patient had been curetted four months previously for an abortion. When first seen by Dr. Boldt she had been bleeding without pain for five weeks, and from the physical signs,—a large and soft uterus, insensitive pelvic organs, a diagnosis of an abortion was made. The bleeding was stopped by the internal administration of stypticin and local treatment, but nine days later, because of a sudden attack of intense epigastric pain and moderate drawing pains in the lower abdomen, associated with fainting and sensitiveness of the cervix, the previous diagnosis was changed to that of a probable rupture of a tubal pregnancy. Immediate operation was refused, and the patient's condition improved until the second day, and just before a vaginal puncture was contemplated for diagnostic purposes, a sudden collapse occurred. On account of the delay in obtaining the written consent of the husband to operate, the condition became so poor that a rapid vaginal operation was done without anesthesia. A very large quantity of blood with the small embryo escaped. The bleeding tube was clamped. Death in two hours. It was found that the tube had been held so high by adhesions that it had been impossible to feel it at the previous examinations. *Case II.*—Patient forty-six years of age. Had had seven children, the last ten months previously. Menstruation that had occurred twice since her labor, last appeared eleven weeks previously. For eight weeks there had been periodical attacks of abdominal pain lasting about six hours, and located in the center of the abdomen, with considerable abdominal distention. A diagnosis of cirrhosis of the liver had been previously made by several physicians because of the anæmia and the abdominal distention that was thought to be due to ascites. The pelvic examination which was very difficult showed the uterus to be slightly enlarged, freely movable and not tender. There had been no pain for the past week. Consent to an exploratory laparotomy was not obtained for three days, when a very large amount of blood was found free in the peritoneal cavity and a fetus of 3½ months' gestation. The placenta attached in part to outer extremity of the left tube, but chiefly to the sigmoid flexure of the colon, was easily removed. Patient died from shock four hours later. *Case III.*—Patient thirty-six years of age. Had had six children; the last six years ago. Atypical bleeding for which a curettage had been performed persisted until the time of Dr. Boldt's first observation. A rapid pulse, anemic appearance, sensitive abdomen, and the presence of a soft mass behind the uterus, made the diagnosis of a ruptured tubal pregnancy with a continuation of the bleeding probable. The operation, confirming this diagnosis, was followed by rapid convalescence. *Case IV.*—The patient from whom this specimen was removed had never been pregnant, and had always been perfectly well. One menstrual period had been skipped, and a sudden and severe attack of abdominal pain followed by collapse was found at the operation, performed two hours later, to be a ruptured tubal pregnancy.

Double Ovarian Abscess due to Infection with Colon and Gas Bacilli.—Dr. H. J. Boldt presented the specimen consisting of the uterus, tubes and ovaries he had removed from a patient, thirty-five years of age, who had always been sterile, and with the exception of irregular pains in the abdomen, had always been well. The husband had had an attack of gonorrhea of three years' duration before marriage. In July, 1904, an acute illness began consisting of chills, fever, prostration and griping abdominal pain. The diagnosis of ovarian abscess was confirmed by the operation. During the nucleation of the right tumor a very audible sound of gas was followed by collapse of the sac and the escape of about a dram of thin and very foul-smelling pus. Dr. Boldt considers the primary cause of the disease to have been a gonorrhea. The tubes, showing slight catarrhal inflammation had evidently been spontaneously cured, but the ovaries had grown worse and in July had become infected with colon bacilli, and probably also with gas bacilli, which accounted for the griping character of the pain.

Hysterectomy for Puerperal Sepsis.—Dr. H. J. Boldt presented a uterus he had removed from a patient, who, upon the fourth day following a normal labor developed chills and a temperature of 104° F. The uterus was large and lax, but contained nothing but a whitish membrane in the cervical canal. The greater part of the broad ligament was removed with the uterus. Diphtheria developed a few days after operation from which she recovered. No streptococci were found in the blood and no diphtheria bacilli in the cervix.

Excision of Portion of the Uterus and Broad Ligament for Puerperal Sepsis.—Dr. H. J. Boldt related the history of a patient who had had chills, fever and

pain since the first day of the puerperium. A curettage had been performed upon the fourth day and a few small pieces of tissue were removed. The right side of the uterus and broad ligament with its thrombosed vessels were removed upon the ninth day. The left side of the uterus appeared to be normal. A retroperitoneal abscess containing about 30 c.c. of sanguinous pus, was emptied. This patient recovered.

Dr. G. L. Brodhead, who had seen this last case, stated, in the discussion, that the delivery had been normal, the head being on the perineum when the attendant arrived. She had suffered from pain during the pregnancy, so that a pyosalpinx had been thought to be present.

Fatty Degeneration of the Placenta as a Cause of Stillbirth. Should a Prophylactic Induction of Labor be Performed.—Dr. G. L. Brodhead related the history of a patient who had a stillbirth at the seventh month without any known exciting cause, except a very marked fatty degeneration of the placenta. He would like to ask the members of the Society if it would be justifiable to induce labor in a subsequent pregnancy at the eighth month in order to avoid a repetition of this occurrence.

Dr. Austin Flint, Jr., stated that as fatty degeneration occurs normally at the end of pregnancy this might be only the exaggeration of a normal condition, unless there is some systemic cause such as syphilis. He recalled a patient who had had five stillbirths and had been sent to him for a premature delivery. The history on examination revealed no cause, and he allowed the patient to go to full term with a living child as a result.

Dr Malcolm McLean said that he believes such degenerations are most often due to syphilis, even without any history, because of his almost uniformly good results from the administration of iodide of potash in doses of 5 to 10 grains beginning in the first month.

Dr. James D. Voorhees related the history of a woman, forty-two years of age, who had given birth to four macerated fetuses. The administration of sodium iodide in 10 grain doses, intermitting it for two weeks, every two weeks, was successful.

Dr. H. N. Vineberg related an instance in which he thought fright was the cause of the death of the child.

Shall Gall-stones or other Pathological Conditions in the Abdomen be Treated when Operating for Pelvic Disease?—Dr. Brooks H. Wells opened the discussion, limiting his remarks to a consideration of the appendix and gall-bladder. After three experiences in operating upon the pelvic organs, in two of which a second operation was required for appendicitis, and in one an obstructive cholecystitis developed, he had made it his practice to examine the appendix whenever he opened the abdomen for pelvic disease, and whenever he felt it could be done without materially increasing the risk of the operation, he had removed it. Of a fairly large number of appendices removed in this way without mortality and without materially increasing the discomfort incident to an ordinary convalescence from an abdominal operation, fully half showed gross evidences of disease. In a case without pus the primary operation is usually completed first, but in the presence of pus, the appendix should be treated first, unless the case promises to be so serious that any extra manipulation must be avoided. If the operation requires only a small incision it may be best made a little to the right of the median line in order to facilitate the search for the appendix. He had never practised any more extended examination of the abdominal contents until in the fall of 1901 he had an experience in which, during an operation for the relief of symptoms due to a retroverted and adherent uterus, he had passed his hand up to the gall-bladder, because of the presence of malnutrition and persistent gastric symptoms, and found a mass of biliary calculi, and removed them through a second incision. Since this experience, he has made it a practice to palpate the gall-blader through the pelvic incision, when the patient gives a history or physical signs suggestive of gall-bladder disease, provided he felt it could be done without too much added risk. This examination should be made at the beginning of the pelvic operation with the aseptic gloved hand wet with warm normal salt solution, which is passed palm upward between the abdominal wall and omentum. Through the ordinary median suprapubic incision, made long enough to admit the hand, not only the pelvic regions, the appendix and the liver, but also all of the other abdominal organs may be palpated with considerable facility and with a minimum of harm.

Cholecystitis Simulating Puerperal Sepsis; Cholecystotomy; Recovery.—Dr. Hiram N. Vineberg reported two cases of this affection.

In the literature of the past ten years he has found the report of three such cases in the puerperium, and two in pregnancy.

Case I.—Nine days after a normal labor, chills, fever and abdominal pain began, which persisted for three days, presenting a picture at first of acute general peritonitis without nausea or vomiting. The pain and tenderness were most marked in the right hypochondriac region and the pelvic organs seemed normal. The operation revealed a very much distended gall-bladder containing pus, dark-colored bile and numerous small stones. Temperature became normal upon the third day and the convalescence was uninterrupted. There had been a previous history of "cramps in the stomach extending over a period of several years."

Case II.—Ten days after a normal labor, except for the manual removal of the placenta, patient was attacked with severe chill, followed by fever and pain in the left iliac region, which after a few hours spread over the entire abdomen, but was most marked in the right half of the abdomen. Decided tenderness and the presence of an ill-defined mass in the region of the gall-bladder with the absence of physical signs in the pelvis were found by the operation to be from an acute infection of the gall-bladder. The gall-bladder contained very little pus, being chiefly filled with a thick, dark fluid and numerous small stones. Convalescence was somewhat protracted by rheumatic pains in both legs.

Dr. H. J. Boldt stated that he considered Dr. Wells' position to be correct in regard to the examination of the gall-bladder, if symptoms are present that would lead one to suspect it was diseased. In the case of the appendix, he thought it to be wrong not to remove it unless positive contra-indications are present. In these cases he invaginates the appendix by the aid of a specially designed probe which catches the tip of the appendix.

Dr. Andrew F. Currier said he would be unwilling to formulate any rule for every case and he would not remove the appendix every time he opened the abdomen, as he was not yet prepared to regard the appendix as a useless organ, composed as it was of lymphoid tissue, it probably had something to do with digestion. The removal of the appendix, too, may not prevent the occurrence of perityphilis. In regard to the gall-bladder, he would not make too extensive an examination unless symptoms pointing to its disease were present.

The President then asked each member present to answer the following questions: (1) Is it your custom,

when performing abdominal operations, to always examine the appendix? (2) Do you remove it if not diseased? (3) Do you remove it if diseased? Twelve out of seventeen answering these questions stated that they believed in examining and removing whether or not diseased in all cases if the patient's condition warranted it.

NEW YORK ACADEMY OF MEDICINE.

Section on Surgery.

Stated Meeting, held January 6, 1905.

Supposed Nephrolithiasis.—Dr. George E. Brewer showed a patient upon whom he had recently operated for supposed nephrolithiasis. He said that the supposition was based upon positive gray and ureteral findings, combined with a very typical clinical picture. After the usual Cooper incision, which he had found most serviceable for exposing the ureter, and a thorough examination of the organ, no stone was found. He incised the ureter and passed a probe into the bladder. As it slid in, he thought he felt a little resistance, but was not certain. He endeavored to explore the bladder with a finder to see if he could feel the stone, but without avail. The patient made an uninterrupted recovery and has had no subjective signs since. He concluded that the stone had been passed between the time of establishment of diagnosis and operation.

Dr. Brewer showed another case which he had operated upon for supposed stone in the ureter. Again the X-ray was confirmative, the only negative findings in the case being those of Dr. Klotz, who reported the ureteral stoma on the affected side normal. On section, no calculus was found in the ureter, but a stone-like mass was palpated overlying the organ which, on examination, was found to lie free in the peritoneal cavity. Careful dissection revealed a mass made up of two concretions, one larger and entirely calcified, the other small and impartially metamorphosed. Careful traction on this showed it to be the calcified tip of an appendix epiploica. Dr. Brewer noted that this discovery was a most fortunate one, for it cleared away some of the doubts which had been too constantly associated with these peri-ureteric bodies. Their existence, he said, had been recognized by the X-rays, and at operation, on numerous occasions, and he was glad to know definitely at least one source for them.

Absence of Symptoms after Renal Tear.—Dr. George E. Brewer showed a case which presented the following interesting history: The patient had been struck by a trolley car and knocked down. He had, however, been able to walk. He was helped to the hospital, and as a precautionary measure was put to bed. The urst urine he passed was bloody. He had no pain whatsoever and showed no objective signs except a suspicion of dulness in the flanks. About five hours after, he suddenly collapsed, and, as Dr. Brewer happened to be in the hospital at the time, he was put upon the table at once. In half an hour, his symptoms had advanced from an absolutely negative condition to one of a grave and most alarming character. The abdomen was opened, the organs evicerated, but all were found normal. The hemorrhage was seen to come from the retroperitoneal space. The abdominal wound was quickly closed and the usual renal incision made. Immediately on section a large portion of the kidney floated out through the wound, with a great gush of blood. The remainder of the organ was seen to consist of two pieces almost torn apart. The hemorrhage was terrific. The man was nearly dead. He was given 3,000 c.c. of infusion. Clamps were put on the pedicle and he was put to bed. By good fortune he recovered.

Importance of Blood in the Urine.—Dr. Brewer said that, observing a number of these cases had convinced him that a general rule should be made to operate upon every individual who had received an injury in the loins or flank and who thereafter passed blood in the urine. Such cases should not be allowed to wait until other signs developed. Speaking of the value of X-ray in diagnosing nephrolithiasis, he said that very few errors would be made if Dr. Cole's rule was followed, to wit: That a diagnosis is not positive unless the outline of the psoas and the transverse processes of the lumbar vertebræ are distinctly visible in the radiogram and further that the edge of the shadow of the supposed stone be closely and clearly defined.

Differential Diagnosis of Calculus Shadows.—Mr. E. W. Caldwell exhibited a number of radiograms which showed very clearly the pseudo shadows which had given rise to many mistakes in the diagnosis or ureteral and renal stone by the X-ray method. He cited a case in which diagnosis of three ureteral stones had been made by a very competent X-ray operator. These shadows lay directly in the course of the ureter and had been interpreted both by the X-rayist and by the operating surgeon to be ureteral concretion. Mr. Caldwell himself obtained an exact duplicate of the previously made plate. This, it should be conceded, placed all doubts of diagnoses out of the possible and the surgeon operated. He was disappointed to find no stone in the ureter. The speaker had noticed that many of these pseudo-shadows are to be seen in the neighborhood of the ischiatic spine. It had occurred to him that they might be cast by sesamoid bones in one of the obturator tendons. He had been unable, however, so far to prove this supposition.

Dr. George E. Brewer stated that in his opinion the calcification of an epiploic appendix was probably but one of a number of different origins for these extra-ureteral concretions.

A Report of 84 Operations on the Kidney and Ureter.—Dr. George Emerson Brewer said that observations extended over the last ten years. Nine only had been performed during the first five years, while 39 had been done within the past twelve months. He reported first the results of the operations; secondly he enumerated the pathological conditions found, and third, he called especial attention to certain groups of cases presenting features of unusual difficulty in diagnosis. Of the 84 operations, there were 27 nephrotomies with 8 deaths; 27 nephrectomies with one death; nine nephrorrhaphies with no mortality; 5 pelvic ureteral sections with no mortality; 10 decapsulations on five patients, with two deaths; six emergency operations with one death. Analyzing the 27 nephrotomies, it was found that pyonephrosis was present in three cases, pyelonephritis in one case, tuberculosis in two cases, intermittent hydronephrosis in one case, multiple septic infarcts in four cases, calculus in 11 cases, while in five cases of exploratory nephrotomy, no lesion was found. Of the 27 nephrectomies there were two cases of primary carcinoma, two cases of hydronephrosis, two cases of early tuberculosis, seven cases of pyonephrosis, six cases of stone, two

cases of ureterovaginal fistula following hysterectomy, one case of septic pyelonephritis, one case of severe hemorrhage following exploratory nephrotomy and two cases of multiple septic infarcts. In discussing this series of nephrotomy and nephrectomy cases, Dr. Brewer said that in every one, the possibility of calculus as a causative factor was considered. In 36 cases the history suggested very strongly the presence of calculus in the kidney or ureter. In but 21 of these, a subsequent operation confirmed the suspicion. In the remaining 15, nine showed other lesions, while in six no pathological condition was evident. In other words, in 45 per cent. of the cases which gave a clear history of calculus, and which in many cases were confirmed by physical signs, cystoscopy, urinary analysis, ureteral catheterization, ureteric meatoscopy, and, in a few cases, by a positive X-ray plate, diagnosis was wrong. This high percentage of error, however, was not to be expected in the future, because of the perfection of technics, a great number of these cases having been operated on prior to the development of modern methods. The author then analyzed the characteristic subjective and objective signs of nephrolithiasis. Pain, he said, was perhaps the most constant sign of the disease. He described four classes of pain, as follows: (1) Severe paroxysmal pain, of the classical kind; (2) mild paroxysmal pain, radiating less constantly downward; (3) severe, constant pain; backache; (4) mild, constant pain, or discomfort. Of 21 cases 13 had severe paroxysmal pain, four had pain of the second class, one of the third class and two of the fourth class. Vomiting was found to be a very constant accompaniment of severe colic. Of the 21 cases 11 had vomited; frequent micturition was present in 12 of the 21 cases; temperature was absent in all uncomplicated cases; tenderness was present in every case. In sixteen it was found in the region of the kidney, at the costovertebral angle. Renal Tumor: In but eight of the 21 cases could the kidney be felt. Hematuria often occurs in very small quantities, such only as can be detected by the microscope. Ten of the 21 cases passed blood. In seven it was quite profuse; in three it was in miroscopic amount. It was important to examine the urine immediately after a paroxysm of pain. The sign of pyuria was of very little value. The author considered the X-ray the most valuable of all routine examinations. Spontaneous hemorrhage occurring during rest and sleep generally means new growth. Hemorrhage following exercise and accompanied by pain suggests calculus. Cystoscopy and ureteric meatoscopy gave correct interpretations in 66⅔ of the cases examined.

Suspected Cases of Calculus.—Dr. F. Tilden Brown said that he had experienced much difficulty in interpreting the X-ray plates of suspected cases of calculus. He agreed with Mr. Caldwell that the pseudo shadows were most frequently seen near the ischiatic spine. He showed a series of plates which had been taken after the introduction of a styleted ureteral catheter. This afforded a guide of the exact position of the ureter and enabled one in most cases to exclude peri-ureteric concretions. The second point he made was that, by proper manipulation, a considerable number of ureteral stones may be washed out of their lodgment without any operation at all. He advised a gradual dilatation of the organ up to the stone, followed by a passing into the ureter beyond the stone of a very small catheter. Through this catheter he would inject, under moderate force, boric acid solution, and thus, by increasing the proximal pressure, drive the stone into the bladder.

Dr. Willy Meyer spoke of the importance of properly interpreting the conditions seen at the ureteral stomata. He had for some time considered it an unfailing diagnostic symptom.

Value of Chromocystostomy.—Dr. M. S. Kakkels said that the value of chromocystostomy had not yet been fully appreciated. He has had prepared tubes of indigo-carmine, which he exhibited to the section. This material is difficult to obtain in sterile form. It, however, is the most satisfactory material to change the color scheme of the urine. The normal excretion at the ureteral stomata is from fifteen to twenty seconds. Fifteen minutes after injection of indigo-carmine, under normal conditions, the urine should be brightly colored.

Dr. Robert T. Morris said that he had recently operated upon a case in which he had found the tip of the appendix calcified and adherent to the ureter. This he presented as a further explanation of the troublesome peri-ureteric bodies.

Cryoscopy in Renal Disease.—Dr. W. W. Miller said that the cryoscopic examination of the blood of a certain number of very questionable cases had been of great value in determining for or against operation. He said that the method depended upon the well-known physical law that the freezing-point varies according to the osmotic density, rather than as a specific gravity. Casper, Richter, Kümmel and others have done most of the cryoscopic work. Bechmann's apparatus is probably the simplest to use and gives very accurate results. The writer exhibited this apparatus and demonstrated to the section the determination of the freezing-point of some serum from a case under observation. Normally, he said, the freezing-point should be .56° C. for the blood. For the urine, from 1.2° to 2.5° C. It was remarkable that, even after an intravenus infusion of 2.000 c.c., the freezing-point of the blood would become normal in four hours. He concluded that cyroscopy indicates to what extent the kidneys are getting rid of the effete products of metabolism, and that, in certain cases of unilateral renal disease, it was a most valuable aid to differential diagnosis.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, held February 7, 1905.

Rhinolalia.—Dr. A. H. Andrews showed a young man, nineteen years of age, who has had a defect of speech almost from infancy. Patient's mother died of consumption ten years ago; father still living and in good health; has an elder brother and elder sister, both in good health. Patient has had the ordinary infantile diseases; but does not know that he has ever had any special trouble with his ears, nose or throat. He has been treated for this defect in his speech without improvement. His occupation is that of billing clerk. Patient counted up to seven or eight in order to bring out the quality of his tones.

Dr. Geo. E. Shambaugh asked if Dr. Andrews had found any anatomical defects.

Dr Andrews replied that he had found anatomical peculiarities, but whether they are defects or not is open to question The peculiarities were an unusually long anteroposterior measurement of the postnasal space From the soft palate at rest back to the pos-

terior pharyngeal wall is a greater distance than one ordinarily sees.

Dr. Joseph C. Beck said that about a year and a half ago he presented a young woman to the Society who had a very similar condition. At that time he went over the subject of defects of speech, particularly of this type, called rhinolalia. Cohen, of Vienna, and Makuen, of Philadelphia, have very clearly described such cases. Dr. Beck remarked that it is an undevelopment of the muscles of the palate from early childhood, or rather an encouragement of baby talk, in plain language, the child not being alowed to develop the palatal muscles, consequently there is an imperfect application of the tongue to the teeth and proper part of the palate. He was not able to develop these muscles in his case until he resorted to a surgical procedure which consisted of the injection of paraffin into the posterior pharyngeal wall in direct line with the soft palate. When the patient would say "ah,' or attempt to swallow or speak, she would shut off a large space that was present, as in Dr. Andrews' case. Following the injections, as soon as the paraffin hardened, she could say the word "plate" distinctly. She wore an artificial velum, but with imperfect success. He stated at the time he reported this case that the treatment in these cases of injections of paraffin or any appliance was not very satisfactory; that these cases required an educational method of treatment. He thought if Dr. Andrews would take the time, as he did with his patient, of taking the tongue of the patient and placing it where it ought to be placed, with proper breathing and gymnastic exercises to develop the muscles, he might be able to overcome the defect in speech of his patient.

Dr. Elmer L. Kenyon said he had not noticed any defect in the enunciation of the patient, either of the vowels or consonants. There was very little movement of the soft palate in this case. In some patients the soft palate in speaking does not approximate closely to the posterior wall, and yet the speech is not markedly nasal. That seems almost imposible, and yet it is true. In other words, with a clear space admitting air into the nose, speech is not distinctly nasal in one particular case which he has in mind. He should think the thing to do would be to train the patient to grasp the feeling which one has or may have when the soft palate approximates the posterior wall. It would seem to him well to press the soft palate gently up against the posterior wall until the patient himself appreciates the feeling of the muscles as they go against the posterior wall; then, having appreciated that feeling, the patient himself can attempt to produce those same movements without the aid of any muscular pressure against the soft palate. Another thing would be to cause the patient to direct his speech outward through the mouth, and at the same time downwards in his throat.

Dr. Norval H. Pierce asked whether the patient ever throws fluids up into his nostril accidentally, to which Dr. Andrews replied that "sometimes he does, but it is very seldom,"

Dr. Andrews, in closing, said that the patient is not conscious of his defect except when he takes cold, and then he realizes that his voice has a nasal tone. He has made some experiments with this young man, and among them he passed a string back through the nostril, brought it out at the mouth, tied a pledget of cotton to the string, and drew it up into the nasopharynx. While this was present, the improvement in his voice was remarkable. He has considered the advisability of injecting paraffin, but knowing that paraffin is much easier to inject than to remove, he has hesitated until he is thoroughly convinced that it is the proper method to pursue. He has seen a number of cases of paralysis of the soft palate following diphtheria, in which the tone was very similar to this young man's, and, in order to confirm the results of his experiments on him, he introduced a retractor into his own mouth, drew forward the soft palate, and then used his voice, with results very similar to what we have in this case. So he thinks there is no question as to the real cause of his trouble; but the great question is how to relieve it.

Mastoiditis in Typhoid Patients.—Dr. P. J. H. Farrell read a paper on this subject, in which he gave brief histories of cases he has operated upon for mastoid trouble that followed typhoid fever. These cases were interesting for two reasons: First, the patients were weak, emaciated and exhausted from a long siege of typhoid fever, and therefore not in a good condition to take an anesthetic or to undergo an operation. Second, the evidence of the rapid and extensive destruction of tissue was unusual in acute cases.

Dr. Henry L. Wagner, of San Francisco, asked whether the pus was examined in these cases. Dr. Farrell replied that in several of them there was a history of streptococci, and in two of the cases pus was examined. In the others he did not think there was any examination of the pus made.

Dr. Wagner had seen similar cases in Pittsburg at the time he was there with Dr. Jackson, who had made similar observations also as to the occurrence of acute laryngitis, and it is certainly of the utmost importance to know whether the typhoid germ has been found or not, or whether it is a mixed infection.

Dr. A. H. Andrews stated that from the reading of the report of the cases it would seem to him possible that some of them may have been ear trouble entirely, and that typhoid had nothing to do with it, unless bacteriological and other tests were made, and gave unmistakable evidence of typhoid. He has seen a number of cases in which the family physician had made a diagnosis of typhoid, and when mastoid symptoms developed, the otologist was thoroughly convinced that it had been otitis from the beginning and typhoid had absolutely nothing to do with it.

Dr. T. Girdon Wilson said that some years ago he took great interest in otitis media, developing in typhoid fever cases. He watched the cases carefully, made a bacteriologic examination of the blood, and of the discharges from the middle ear, and in no case did he find any trace of the typhoid bacillus in the ear discharge, nor in the mastoid discharge. Very often when he examined the throat in undoubted cases of typhoid, he could find no trace of the typhoid bacillus; but very constantly he found the streptococcus and the staphylococcus. Of 350 cases examined, only one case was found of mastoid disease complicating typhoid.

Dr. Norval H. Pierce believes it is a valuable method of investigation to consider the various types of ear disease as they occur in various diseases. The diseases of the middle ear as they occur in typhoid have many peculiarities. Not only are the affections of the middle ear peculiar, whether or not produced by the typhoid bacillus *per se*, but the affections of the internal ear occurring in typhoid are peculiar and interesting. They have peculiar prognoses, as well as peculiar courses, and he sees no reason why we should not report these cases as they occur, and endeavor by closely studying them to adduce therefrom most valuable knowledge.

Dr. Farrell, in closing, and in reply to the doubt expressed by Dr. Andrews as to whether these were really typhoid cases, said that the history sheets and charts show that all of them ran the typical fever curve, with

rose spots on the abdomen, and Widal, diazo and blood cultures showing typhoid bacilli, so that there was no question about the accuracy of the diagnosis. To begin with, they were not his typhoid cases; they were his mastoid cases, and came to him as such for operation. Their histories were carefully taken and there can be no question about the diagnosis being accurate and complete as to typhoid. These cases showed a more severe and destructive course than we generally meet in acute cases. In all of them the necrosis was very extensive. The rapid convalescence from typhoid was most marked in all cases operated upon.

The Maxillary Antrum; the Removal of the Greater Part of Its Nasal Wall for Empyema.—Dr. Otto T. Freer read a paper with this title, and presented a patient upon whom he had done the operation. He referred to the work done by Holbrook Curtis in this direction, and to twelve cases reported by Claoué, and seven reported by Escat. The operations in nine of Claoué's cases and in all of Escat's resulted in perfect recoveries. The imperfect relief and annoyance to patient and surgeon given by alveolar drainage was considered, and the reluctance of patients to consent to the radical Caldwell-Luc procedure, as this requires general anesthesia, and ablation of most of the facial wall. Compared to this severer method, Dr. Freer gave as the advantages of the operation he described: Operation under cocaine anesthesia instead of narcosis; the avoidance of resection of the facial wall of the antrum; the free access in spite of this given to the interior of the antrum for inspection and curettage, and the perfect drainage and ventilation of the antrum obtained. While admitting that the radical operation would still be required for the severest cases, the author contended that in the great majority the nearly complete removal of the nasal wall would suffice, as it offered the advantages of the radical operation without its usually needless removal of the facial wall. Dr. Freer's patient had had an empyema of the right antrum of Highmore, with intensely fetid purulent discharge for a year. Diagnosis made by transillumination and washing through a Myless trocar, which had been made to pierce the antrum in the inferior meatus. The operation was performed as follows: Local anesthesia was produced by the application with a minute swab of powdered cocaine. The anterior two-thirds of the right inferior turbinal were resected with Grunwald scissors, and angular knife. A long straight trephine was then applied to the outer wall of the nose in the inferior meatus, its shank pressing the cutaneous septum, and with it the nasal tip, strongly over to the left, so that the trephine crossed the inferior meatus at an angle of about 45 degrees. After perforating the nasal wall of the antrum with the trephine in the place indicated, a long barrel-shaped bur was placed in the hole made, and the greater part of the nasal wall of the antrum cut away. The opening was still further enlarged with Rhodes' large punch forceps. The window so made in the nasal wall of the antrum extended from above the lower border of the middle turbinated body in the middle meatus downward to the nasal floor, the base of the nasal wall of the antrum being trimmed off to the very bottom with the bur. Behind, the opening extended to the perpendicular plate of the palate bone; in front, to within five-eighths of an inch of the apertura pyriformis. Large amounts of foul, coagulated pus escaped, and all of the interior of the antrum could be inspected excepting the inner surface of its facial wall. Curettage was not needed, but could have been thoroughly performed. The hemorrhage was insignificant. The interior of the antrum was palpated with the little finger. The cavity was firmly packed with a long strip of lint impregnated with subnitrate of bismuth. Complete recovery ensued in about three weeks. Dr. Freer warned of the danger from arterial hemorrhage if the posterior wall of the antrum lying in front of the sphenomaxillary fossa was pierced, or if the palatal bones were included in the resection. The success of the operation depends on the making of a large opening and especially on the complete cutting away with the bur of the ridge between the floor of the nose and that of the antrum, as only a large opening will remain permanently.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held January 5, 1905.

The President, Dr. Richard C. Norris, in the Chair.

A Consideration of Fibroid Tumors of the Uterus Based Upon a Series of Cases Treated Surgically.—Dr. J. Clarence Webster, of Chicago, read this paper (by invitation). In 210 cases of fibromyoma of the uterus the following degenerations were present:

	Cases.
Calcareous	2
Cystic	13
Edematous	6
Myomatous	4
Suppurating	10
Adenocarcinoma of cervix	1
Sarcoma	2
Hemorrhagic	3
Necrosis	11
	52

Pelvic complications were noted as follows:

Broad ligament development	11
Prolapsus uteri	7
Retroversion of uterus	11
Hematosalpinx	6
Ovarian cystomata	12
Unilateral salpingo-ovaritis	7
Bilateral salpingo-ovaritis	42
Unilateral ovaritis	3
Bilateral ovaritis	29
Hernia	4
Appendicitis	26
Pregnancy	6
	164

In the above list the frequency of diseases of the appendages must be noted. In 99 instances there were pathological changes in the tubes and ovaries. The association of malignancy was noted only in two cases. In two there was sarcoma of the corpus uteri, the fibroid growths; in a third, early adenocarcinoma of the cervix was present. Cardiovascular symptoms were present in about 25 of the cases. It is possible that cardiac hypertrophy may sometimes result when the tumor is only of moderate size. A question of considerable interest is that relating to the influence which may be exerted by products of the uterine growth on the heart and other organs through the medium of the circulation. Renal disturbances are more common in association with fibroids than is generally believed. In about 30 per cent. of my cases there was noted one or more of the following conditions, viz., Deficient amount of urine or urea, albumin, casts, edema of the feet. In no instance was there evidence of previous organic renal disease, nor did treatment fail to bring about marked improvement prior to operation. Attention is directed to Noble's

views concerning the influence of degenerations and complications of fibroid tumors in influencing morbidity and mortality. The majority of writers have undoubtedly underestimated their influence. The widely held views as to the comparative harmlessness of uterine fibroids must be greatly modified. Taking into consideration the pressure effects, the tumor degenerations, the pelvic and abdominal complications, the changes in the heart, large vessels, kidneys and liver, the chronic anemia of hemorrhagic cases, and other occasional associations, *e.g.*, suppuration, gangrene, peritonitis, phlebitis, embolism, the influence of pregnancy and labor, the new growth must be considered as seriously increasing morbidity and mortality in women in whom they occur. The view held by some that all fibroids of the uterus should be removed surgically unless there is some marked contraindication to operation, is not upheld. All large or growing tumors or small ones which cause troublesome or serious symptoms should be treated surgically. In attempting to establish indications for surgical treatment, various factors must be considered. Thus, the site of the growth may indicate early removal of a tumor, *e.g.*, a submucous polypoidal fibroid, a cervical growth, one developing extra-peritoneally, a subperitoneal tumor tending to fall within the pelvic cavity, etc. The nature of the tumor may afford an indication, *e.g.*, rapid growth, cystic change, necrobiosis or infection, malignancy, association with pregnancy.. The size and number of the tumors within a somewhat ill-defined limit are considered by many authorities as secondary to the other factors in determining surgical interference. One pedunculated subserous tumor, by falling below the pelvic brim, might cause serious pressure symptoms which might never be found with multiple sessile growths. Fibroids should never be allowed to reach a large size, that is, to become palpable abdominal swellings. The nature of the associated complications may often afford the indication for surgical measures. It is due to his special study of these complications that Noble has so strongly advised early operation in fibroid diseases of the uterus. In regard to the choice of surgical procedure, ligation of the uterine arteries has scarcely any place in treatment. Removal of the uterine appendages should only be carried out in the rase cases in which other procedures are inadvisable, on account of the patient's general condition, or when the relationships of the tumor are such as to make removal impossible. Myomectomy has been less practised than it should have been in recent years, owing to the brilliant results obtained in the reduction of the death rate following total extirpation and supravaginal amputation of the uterus. The conservative procedure was carried out by the author 48 times in the 210 cases. He thinks more attention should be given to this operation by gynecologists. Supravaginal amputation has been practised in preference to total extirpation as a routine operation, because it may usually be performed in a somewhat shorter time. There is less hemorrhage; the anatomical relationships of the pelvic floor are better preserved; there is less risk of wounding the ureters.

Owing to recent studies of the complications of fibroids, a serious objection has been raised to the performance of this operation, *i.e.*, the occasional association of fibromyoma and malignant disease. From this standpoint, it must be concluded that total extirpation of the whole uterus is the most scientific procedure.

Dr. Ellice McDonald, of Albany, N. Y., thanked the society for discussing his paper, presented some months ago, and regretted his absence; listened with much interest to Dr. Webster's paper. The subject of fibroids is still a very open question. The subject of malignant degeneration, particularly for the last year or two, has attracted very great attention. It does seem that a certain percentage of fibroids are prone to degenerate into sarcoma. Dr. McDonald does not think the question is entirely settled as to whether a fibroid may degenerate directly into a sarcoma, or whether the sarcoma is grafted on to the fibroid. Since the paper of Whitridge Williams, of Baltimore, published in the *Journal of Obstetrics* some years ago, the greater number of gynecologists and pathologists have been turning to the idea of a fibroid being degenerated directly into a sarcoma. This is of great importance, not only to the gynecologist and pathologist, but to the embryologist. It will no doubt be finally accepted by the embryologists, who will be the last to accept the idea, because it is contrary to all their theories. It does seem that while carcinoma of the cervix is not more common in fibroid than in ordinary run of cases, that adenocarcinoma of the fundus is a little more common in diseased conditions of the fundus or with multiple fibroids than in the ordinary run of cases. The question of tubal complications is one of the most important in regard to fibroids, because upon the presence or absence of these complications must depend our choice of operation. If it is true, as has been pointed out, that the ovaries are diseased in a great number of these cases, and if it is true, or if it is only a coincident, that cystic degeneration of the ovary is more common in fibroid disease of the uterus than in other tumors, it is a question whether the ovaries should be left with the presence or cystic disease eradicated. One of the most important studies is for some one to give some true idea of the conditions of the surgical menopause. If the surgical menopause is as severe as has been taught; if it is a condition that passes off, or is a permanent one lasting for a term of years, should patients be subjected to this long convalescence? This is a question not yet satisfactorily worked out. Winter, in a recent article has made a few scattered observations, but no definite study of the condition. In regard to the question of cardiovascular disease, Dr. McDonald's 14 post mortems the findings correspond with Dr. Webster's, but in three cases there was cardiovascular disease associated with a fibroid disease of the uterus. In one case there was aortic valvular disease; in one case brown atrophy of the heart and in the third there was mitral disease. The question of the predisposition of the various races is a very interesting one, and should form the basis of all studies of fibroids because, before the mortality and morbidity is studied one should have some knowledge of the percentage of occurrence.

Comparisons.—In Dr. McDonald's paper, which was read before the Society last winter, he found from post-mortem records mainly in women of Dutch extraction that one woman in every seven in the upper part of the State of New York had a fibroid. One knows the predisposition of the negro race to fibroids and it is borne out by experience. In his service at the Lying-in Hospital in the City of New York for the last six months in a large obstetrical service, he has had the staff men pay particular attention to the presence of fibroids, letting the author know when they were found. In a service of 2,570 cases in six months, fibroids were found thirteen times, a percentage of less than one-half of one per cent. This may be taken as a fairly good estimate of the status of fibroids in women in the East Side of New York, and as a fairly good percentage of the frequency of fibroids.

In three of these cases there were post-mortem hemorrhages, and this seemed to be invidious. The fibroids were all of the interstitial va-

riety. In two cases the uterus contracted well, but in one there was alarming hemorrhage. In three cases radical extraction of the membrane was necessary and immediate packing. In three cases there was malposition of the uterus, two of which were curetted. In five cases there were some pathological lesions of the placenta. In all cases in which there was some alteration in the placenta it was adherent to the fibroid. There was a large area of necrosis which seemed in one case to be a calcareous degeneration of the placenta, but when one considers the frequency with which this occurs, Dr. McDonald thinks the fibroid had nothing to do with it. While there were thirteen cases of fibroids, one case came to Cæsarean section. In obstetrical cases there is this tendency to post-mortem hemorrhage in all fibroids situated in the uterine wall. One case of pedunculated fibroid aborted at three months. Root says there is abortion in 21 per cent. of all fibroids. He has not eliminated the cases of gonorrheal infection. In the recent paper of Winter he treats the question of mortality from the standpoint of the various operations. In hysterectomy by the vagina, his mortality is 2½ per cent.; in abdominal operation 4.6 per cent.; in the conservative operation five per cent., and in the conservative abdominal operation nine per cent. This bears out what I have said and what Dr. Clark and Dr. Cullen laid particular stress upon at a recent meeting in regard to the danger of doing myomectomy where you have disease of the tubes or kidneys. One must look not only on direct disease of the tubes when pus is present, but on disease of the tubes of any sort as being potential sites of infection. Miller, of Washington, found streptococci in adhesions ten years after operation. He would not say that one gets infection from adhesions in every case, but must look upon them as potential.

Question of Malignancy.—Dr. E. E. Montgomery said that one realizes that the mere presence of a fibroid growth, from its increased amount of congestion and irritation would of itself tend toward the development of malignant disease. When the frequency with which fibroid growths occur is considered, it does not seem to him that the proportion of malignant infection is sufficiently great to assume the growth is an essential feature in its development. The contraction which takes place in fibroid tissue leads to atrophy and arrest of its circulation, tending to the development of edema. This edema occurs not only in cases in which strangulation has taken place as the result of the twisting of the pedicle of a subserous fibroid, but also in growths in which one finds a tendency to degeneration of the arteries, as shown in associated ovarian hematoma. Dr. Montgomery is inclined to think that the disease of the heart and of other organs is more frequently found in those cases in which the fibroid is of the submucous or interstitial form where the tendency to hemorrhage is marked or characteristic. One can appreciate why a fibroid occupying its position in the pelvis and attaining to any size must affect the kidneys by pressure upon the ureters. As Dr. Webster has said, it is difficult to fix a rule for the time of operation. The mere fact that a woman has a fibroid growth of the subperitoneal variety should not, in Dr. Montgomery's judgment, be an indication for operation; but, when it is evident that these growths are increasing in size, or there is a disturbance of the circulation shown in the increased menstrual flow or irregular menstruation of such a character as to induce blood changes in the patient, operation is indicated. Also cases in which it is evident that degenerate changes are taking place should be considered as indicating operation. He fully agrees with Dr. Webster as to the inefficiency and inadvisability of ligation of the arteries with a view of controlling the growth of the tumor, having himself performed this operation but never looked upon it favorably from the theoretical standpoint. If one cuts off the supply of blood sufficiently to limit the growth, it is a question whether the circulation may not be arrested and so bring about necrotic change in the tumor. He has done myomectomy in a number of instances removing a number of growths from the uterus. The operation appeals to him in women under thirty years in whom it seems undesirable to bring about the cessation of the sexual function. It is an operation, however, which must be followed by a more stormy convalescence than one would find in the ordinary operation of hysterectomy. This can be readily understood, for in the enucleation of a number of single fibroid growths from the uterine wall there is a large amount of tissue of low vitality which will be readily infected and an accumulation of blood in dead spaces from which the patient runs an increased danger. He has a patient under observation at present upon whom he did myomectomy for the removal of a tumor the size of a child's head. The woman was single, about thirty years of age, and he could not resist the inclination to attempt to save the uterus. The tumor was situated more particularly in the anterior wall and projected into the cavity of the uterus. The tumor showed the vessels over the anterior wall of the uterus rather diminished in number and the growth looked pale before an incision was made through it. The tumor was enucleated and the cavity within obliterated as far as possible. This was done by carrying gauze through the cervix and packing the cavity when the uterus closed over it. After operation the surface looked exceedingly pale over the line of suture. The woman had a prolonged convalescence with some elevation of temperature and with discharge of material through the uterus, and finally he made an incision through the induration of the abdominal wall through which necrotic tissue discharged. The patient is convalescing favorably, but has undergone serious danger as a result of the effort to save the uterus. In performing hysterectomy he has for the last four years preferred the panhysterectomy to the supravaginal operation, not only for the reason that occasionally there is a case in which cancer involves the cervix, but because in some cases there has been injury to the cervix. In addition he believes there is a better drainage and less likehood of elevation of temperature, and the convalescence of the patient is more satisfactory where the complete operation is done.

Statistics.—Dr. Barton Cooke Hirst found in his catalogue of cases, classified according to disease, the record of 189 fibroid tumors treated by some form of surgical procedure. Twenty-seven per cent. were treated by myomectomy; sixty per cent. by hysterectomy. Vaginal enucleation, oophorectomy and ligation of the uterine arteries made up the remaining thirteen per cent. He has seen the following degenerations: Three sarcomatous, five cystic, four necrotic, two myomatous and one calcareous. In about fifty per cent. there was some pathological condition of the tubes and ovaries, but it was usually in the shape of old adhesions; occasionally a hydrosalpinx, and very rarely indeed, a pyosalpinx, not in two per cent. of the cases. There was an associated adenocarcinoma of the corpus in one case. The serious degenerations and complications, therefore, amounted to eight-tenths per cent. For the benefit of the profession generally, he should like to have heard something about the palliative treatment of hemorrhage for the time being. He is not yet prepared to admit that every fibroid tumor indicates a radical operation. Personally, he has found that much-

derided and much-despised therapeutic agent, electricity, the most useful treatment. He has had quite an extended experience with it in one way or the other for twelve or fifteen years. The County Medical Society appointed Drs. Goodell, Parvin, Montgomery and himself (Dr. Hirst) a committee to examine cases treated by this method when Apostoli's claims were exciting so much attention, and that committee, if he is not mistaken, has never been discharged, because it had nothing to report. The positive pole of a galvanic current in the uterine cavity 40 to 60 milliampères, will check hemorrhage in suitable cases more surely than any other agent he has tried. There are a number of cases, as the general practitioner knows, which may require nothing else, if the tumor is small in size, is not growing, shows no signs of degeneration or inflammatory complications, is not causing pressure symptoms and exerts no deleterious influence on the general health.

Dr. Charles P. Noble said it has been gratifying to him to find in the literature upon fibroids in the last four years that in the various series of cases studied the conclusions have agreed practically with his own. The chief point for discussion, in his opinion, is with reference to the nature of the indication for treatment—whether fibroids should be treated from the standpoint of symptoms or from that of the life history of these growths. It is his opinion that enough facts are being gathered so that in the future they shall be treated from the standpoint of the life history of the growths, just as ovarian growths rather than from that of symptomatology. Dr. Webster's paper is important and interesting, because his cases have been carefully studied. His deductions are not mere expressions of opinion but the result of actual study of the facts in his series of cases. A remarkable fact was that in 210 cases there was not a single case of adenocarcinoma of the corpus uteri. In the reports of other men this has not been true. In the cases reported by Dr. McDonald, The Johns Hopkins and Dr. Noble there has been excess in occurrence of adenocarcinoma of the corpus uteri; this being so marked as to be the basis for the opinion that fibroid tumors of the uterus is a predisposing cause of adenocarcinoma of the corpus uteri. The next point in comparison with Dr. Noble's cases is with reference to complications in the uterus, and in the appendages. The complications in the appendages were much greater in number than those in my own cases, particularly the inflammatory complications. Whether that means that gonorrhea is much more frequent in Chicago than in Philadelphia is a question. In reference to the total extirpation of the uterus versus supravaginal extirpation, it might be of interest to say that out of approximated 700 hysterectomies, so far as my knowledge goes, there have been two cases of carcinoma of the cervix following supravaginal amputation of the uterus. In one case the condition was doubtless overlooked at the time of operation, as carcinoma of the pelvis developed very promptly. In the other case in which there was supravaginal amputation for inflammatory disease, epithelioma of the cervix developed four or five years later. Therefore, this factor, in Dr. Noble's judgment, does not play a large rôle. He has never been impressed with the belief that myomectomy could play a large rôle in the treatment of fibroids. If guided by his statistics he might be in favor of myomectomy, as he has had but one death and that in a case of sloughing fibroid removed per vaginum, but his results have been good because of care in selecting the patients. He has had the experience of having a number of patients bear children after myomectomy. He thinks the cases should be carefully selected for myomectomy and the desire of the patient should be a factor in the case. He has not been impressed greatly by the literature upon the surgical menopause. It has not been his experience that patients after hysterectomy have been especially troubled with the menopause symptoms; nor has he seen in the considerable number of cases in which he has left an ovary that there has been any difference in sequel, whether the ovaries have been removed or left behind. He thinks it is is one of the fads of the day and that there is very little basis for the fad. In a large percentage of cases the troublesome symptoms are greatly exaggerated.

Dr. John G. Clark said that in discussing such a broad subject as the one which Dr. Webster has so fully covered this evening, it is impossible in a short time to more than touch upon a few of the more salient points. Of these Dr. Clark would speak especially upon the three following: (1) The possibility of a supravaginal hysterectomy, of a malignant involvement of the remaining stump; (2) the benefits of leaving the ovaries behind in cases of fibroid tumors; (3) the effect of fibroid tumors in the production of cardiac disease. Relative to the first point, unquestionably a supravaginal amputation of the uterus is much easier, and in the end, gives more satisfactory result, so far as keeping intact the pelvic floor, than that following panhysterectomy. It goes without saying, therefore, that from the mere anatomical standpoint, it is preferable to leave the cervical stump. On the other hand, the objection which has been offered to the partial operation, because of the dangers of a malignant degeneration in the cervical stump or the recurrence of carcinoma, which possibly may have been a coincident part of the fibroid, but overlooked, is a strong one. However, in the event of carcinoma being present in an early stage in the fundus, its extension to the cervix is practically always by continuity along the line of the mucous membrane. Therefore, he is sure that one will obviate the dangers of a maligant degeneration of the stump by a thorough cauterization either with the Paquelin or electric cautery of the cervical canal. This leaves only the rim of the cervix behind, but does not break the attachment of the broad ligaments on either side. With this precaution one may safely advocate the retention of the cervical stump. Concerning the second point, the retention of the ovaries in order to render the surgical menopause less acute, he has very strong impressions. For ten years he has followed the fixed policy of leaving behind the ovaries in every case of fibroid tumor where it was possible, and has been astonished to find that this can be done in a large proportion of cases. When one takes into consideration that the pathologic reports bearing upon the association of ovarian disease with fibroid tumors largely consist of various degrees of inflammatory lesions, he believes one is justified, even when there are adhesions, in leaving behind all or a portion of one or both ovaries; for in a considerable proportion of these inflammatory cases adhesions are not due to infection but to traumatism produced by rubbing of the tumor against the ovary or crowding the ovary in against the pelvic wall, or downward into Douglas's cul-de-sac. Therefore, he is sure if this is relieved by the removal of the tumor that the ovary will not subsequently give any serious trouble. As yet he has not made a careful post-operative study of these cases relative to the question of the surgical menopause, but has had so many of them tell him that they were almost free of the distressing sequelæ of which other patients so many times complain, that he is strongly persuaded that this is the better policy to pursue. Dr. Noble looks upon this phase of the myoma question as a passing fad, and believes it cuts little or no figure in ameliorating the symptoms of which these patients so

many times complain. Relative to the third point, the cardiac changes so frequently spoken of as a complication and sequel of fibroid tumors, he is of the impression, from the study of a large series of cases that for soem reason this complication is less frequent in this country than in Germany. The German gynecologists seem to be greatly impressed with the frequency of the so-called "myoma heart," and warn their students especially against the dangers of sudden death incident to heart disease following hysterectomy for fibroid tumors. Whether there is a distinct influence exercised by a fibroid tumor in producing heart trouble Dr. Clark was unable to say, but he cannot conceive of any more radical disturbance being caused than that of a heart overworked in pumping blood through the resistant tumor mass. In a short experience in Prague he saw two fatal instances of pulmonary embolus, one of which was diagnosticated as death from a "fibroid heart." In both cases autopsy showed that the heart was not at fault, but that an embolus had been detached from the seat of operation and had blocked up the pulmonary vessels, thus producing death. Therefore, in neither of these cases of sudden death could the action of the heart be called in question. A pulmonary embolus is much more likely to be a sequel of a hysterectomy for fibroid tumor than almost any other pelvic operation, because the impaction of the tumor in the pelvis or its pressure upon the large vessels at the brim of the pelvis is very likely to weaken their walls and cause more or less dilatation. Not only may these vesels be the seat of a thrombus, but the greatly enlarged ovarian and uterine veins may also be the seat of large thrombi, from which emboli may be dislodged and carried to the lungs. Therefore, he is inclined to think that sudden death following hysterectomy is more frequently due to a pulmonary embolus than to cardiac disease per se.

Dr. W. Easterly Ashton thought that every case of fibroid must rest upon its own merit, and that in determining the line of treatment each case must be specially studied. One should take into consideration (1) The mortality of major operations on uterine fibroid; (2) the danger of degenerations occurring, and (3) the social condition of the patient. The true mortality of hysterectomy is probably from five to eight per cent., and when a woman comes to a surgeon seeking relief from a fibroid tumor, it is a serious matter whether or not to advise operation, because a mortality of eight per cent. is not to be lightly considered. On the other hand, he believes that the social condition of the patient is also to be considered. Women in the lower walks of life who are obliged to labor for their living cannot endure the symptoms produced by the disease as well as women with plenty of money. So in the former class it may be necessary on account of the symptoms to resort to operation.

If a tumor is causing but little trouble, with no pressure symptoms and the patient is in fairly good condition, he does not advise an operation. Under these circumstances the patient should be seen frequently, and if the tumor begins to grow, an operation should be advised without saying that it is taking on this or that degeneration. The operation of myomectomy has a very limited field and he agrees with Dr. Montgomery that it is dangerous. Dr. Ashton has done but few operations of that class, because it never appealed to him. He believes if he were to adopt the operation he would have a large mortality, as the spaces are not well filled up and the tissues so bruised that a bad focus for infection is left. In reference to panhysterectomy compared with supravaginal operation, he believes that in all classes, except where infection or malignancy exists, the supravaginal operation is the one of selection. Panhysterectomy shortens the vagina, the marital relations are interfered with and has a higher mortality.

Dr. Webster, in closing, said he was glad to be able to bring this subject before the Society because he has realized the important work that has been done in this Society in regard to fibroids. It was certainly Dr. Noble's work which made him study his cases carefully, and he believes that a great many others have been started on the right lines through his initiative. He thinks that in this country in the last few years the obstetrician has been carried away by the brilliancy of those who have perfected the major operations. He quite agrees with the remarks which have been made concerning the risks of performing myomectomy under certain conditions, and in his paper he tried to point out the limitations which had guided him. He excluded infective conditions of the mucosa of the uterus. He does not think one should fear the danger of closing the myomectomy incision with continuous catgut. He has never used any other method. He particularly stated that he did not think myomectomy should be performed where very large incisions are necesary or where much mutiliation of the uterus is necessary. In his myomectomy cases he has rarely required to open the mucosa or to make very large incisions; in other words, the tumors have not been large. One speaker suggested that it would not be wise to perform myomectomy where there were many tumors. Dr. Webster agreed with him. In the two cases quoted by him in which pregnancy took place, he was particularly requested to perform myomectomy. In one case six tumors were removed by the abdominal method, and, in the other, twelve or thirteen. Both were doctors' wives and pregnancy happened to follow at a later date. In neither of these cases were all the fibroids removed from the uterus. A number of very small ones were left untouched. He does not see why there should be a larger mortality after abdominal myomectomy in selected cases, than there should be after supravaginal amputation or total extirpation. He has felt in reading Richelot's paper in which he advocates total extirpation instead of a supravaginal amputation on account of the occasional occurrence of malignancy in the cervix after the latter operation, that he is exaggerating the importance of the latter condition. Dr. Webster thinks that Dr. Noble's statistics are far more important, as he has stated in his paper, in indicating the performance of the complete operation for the occurrence of adenocarcinoma in the body of the fibrous uterus.

BOOKS RECEIVED.

Aequanimitas and other Addresses. By Dr. Wm. Osler. 8vo, 389 pages. P. Blakiston's Son & Co., Philadelphia.

The Influence of Growth on Congenital and Acquired Deformities. By Dr. A. B. Judson. 12mo, 276 pages. Illustrated. Wm. Wood & Co., New York.

Gall-Stones and their Medical Treatment. By Dr. B. G. A. Moynihan. 8vo, 386 pages Illustrated. W. B. Saunders & Co. Philadelphia, New York and London.

Diseases of the Liver, Gall-Bladder and Bile Duct. By Dr. H. D. Rolleston. 8vo. 794 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

Essentials of Medical Chemistry. By Dr. L. Wolf. Revised by Dr. A. F. Witmer. 12mo, 226 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

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ORIGINAL ARTICLES.

A PROTEST AGAINST RADIOLOGIC MISINFORMATION.

BY HENRY G. PIFFARD, M.D.,

OF NEW YORK.

IT is unfortunate that whenever a new therapeutic agency is discovered there appears to be a desire on the part of some to exploit it to the fullest extent; to employ it, with or without any decent excuse therefor; and very often when better methods of treatment for a long time had been at the command of the profession. Not content with this they rush into print with eulogistic accounts of their early experiences, hoping thereby to obtain credit for priority in the use of the new and wonderful means they have at *their* command for the cure of almost everything from baldness to corns.

That some of these articles are dictated by vanity is extremely probable; that others are potboilers pure and simple is undoubted; while still others give one the impression of being deliberate and intentional fakes.

I believe, however, that the articles as above characterized are in the minority and that the vast majority are written in perfect good faith and with the sole desire to instruct the profession by accurately reporting the actual experience of their authors.

Such contributions would be of the greatest value to the profession were it not for the fact that the results obtained were often not due to the agencies the author claimed to employ, but rather to forms of energy that he had entirely overlooked.

No one, I believe, will question the statement that articles of this character, however well-intentioned, are an injury to science and to the profession by giving a false impression as to the therapeutic value of the agencies said to have been employed, and overlooking the value of those that were the real active forces that were under command at the time. It is not alone in the periodicals that one finds these faults but also in books that are offered for the instruction of the profession; the authors often indulging in the most misleading and sometimes ridiculous statements. It is my intention to point out a few of these, as I think it time that some very prevalent errors should be corrected.

In a recent work devoted to Static Electricity and other topics I find the following:

"In a dark room polarity" (of a static machine) "may be determined by looking at the plates. Only a few stars are found on the metal comb on the positive side, while a heavy *ultraviolet* stream will be *seen* on the negative side" (italics my own). I need hardly state that the ultraviolet rays are invisible to the ordinary eye.

In another work on static electricity the author speaks of my "hyperstatic" as an up-step transformer which is correct; but immediately afterward calls it *hypostatic* and very curiously in the diagram that accompanies the description shows it as a *down-step* transformer which is incorrect.

A little more than a year ago, an article appeared in one of the metropolitan medical weeklies entitled "The Ordinary X-ray and Ultraviolet Rays in the Treatment of Tuberculosis." From this I quote but a single sentence, as follows:

"In my practice I have used the double focus high vacuum tube, and the ultraviolet . . . tube. I am now using chiefly this ultraviolet tube which is a new method of developing the ultraviolet rays by means of electricity. This tube is an ordinary Crookes' tube, from which the gases have been exhausted in a certain way, and the metal disks so arranged that an ultraviolet, instead of a green-yellow ray is produced. The advantage of this ray over that possessed by the Finsen lamp ray is its greater penetrating power, simplicity and ease of operation."

I am perfectly familiar with the tube the gentleman refers to, and as a matter of fact the tube actually used by him is in my possession at the present time. It is in no sense a "Crookes'" tube, being a low-vacuum tube of the old Geissler type except that it is globular instead of being cylindrical in form.

The original form of Crookes' tube with which Roentgen made his famous discovery was pear-shaped with a plane cathode disk at the smaller end, and the positive electrode inserted at one side. When connected to a proper high tension source, the cathode rays impinged on the basal end of the tube, causing fluorescence and the development of X-rays. A year later (1896) Mr. Jackson brought out his focus-tube in England[1] and all tubes now in use for X-ray work employ this form of construction. The tube used by the writer of the paragraph, when properly actuated, will become more or less filled with a colored luminosity that by courtesy may be termed violet. There are doubtless invisible ultraviolet radiations in association with the colored rays, but the glass walls of the tube constitute a very serious obstacle to their exit. For ultraviolet therapy, therefore, such a tube is comparatively worthless. The writer further confuses the luminosity *within* his tube with the greenish fluorescence due to the impact of the cathode rays on *the walls* of the tube. Finally he commits an error in stating that ultra-

1 The earliest description that I find of this tube is contained in the Archives of Skiagraphy, June, 1896.

violet rays are more penetrating than the rays from a Finsen lamp. The penetrability of spectrum rays varies directly with their wave-length; *those of the visible spectrum penetrating much more deeply than the short waves of the ultraviolet.*

Another writer recommends the use of ultraviolet rays in neuritis, pulmonary disorders, pleuritic pains and some other affections and says: "I believe that the ultraviolet rays will be of benefit in gonorrheal and tuberculous infections of the joints; also that the pains accompanying locomotor ataxia may be relieved and controlled." In the arrangement employed by this gentleman he obtained luminous and infra-red rays in large volume and great intensity, but the amount of ultraviolet was exceedingly slight, in fact, negligible from a therapeutic standpoint. I do not question the writer's sincerity nor the clinical results reported by him. He was simply deceived as to the agencies that brought them about.

Still another writer, referring to a vacuum tube connected to one pole of an X-ray coil, says: "When in operation this tube is filled with ten thousand waves a minute of ultraviolet and violet light passing into the tissues and disappearing." When we know that the violet and ultraviolet waves succeed each other at the rate of many billions per second the writer's claim of ten thousand a minute is indeed very moderate. They certainly do disappear in the tissues, and it is doubtful if the ultraviolet rays, of which very few would be available, can penetrate even through the entire thickness of the skin.

Still another writer publishes an article entitled "Locomotor Ataxia Successfully Treated with Ultraviolet Rays." This puts a pretty heavy strain on my credulity.

That the very superficially acting ultraviolet rays should penetrate the skin, the fascia, the protecting cartilaginous and bony walls of the vertebral canal and influence the tissues of the spinal cord is to me utterly unbelievable.

It is well known that certain substances if exposed to the ultraviolet, X-rays and radium in a darkened room, will respond by the development of a luminosity and of a color quite different from that which they ordinarily possess. To this condition the name fluorescence has been applied.

A given substance, however, may not respond equally to all three of the agencies above named; and there are many which respond to the ultraviolet, that fail to do so when exposed to X-rays or radium. I do not at the moment recall any reverse instance that is responsive to X-rays or radium and non-responsive to ultraviolet. Some substances, *e.g.*, certain calcites, respond differently to different parts of the ultraviolet region.

Some of the fluorescing substances appear to exhibit marked preferences in their behavior in presence of the different types of radiation—thus platino-cyanide of barium shines brightest in the presence of X-rays; zinc sulphide with radium and willemite (impure silicate of zinc) and certain calcites are most brilliant in the presence of extreme ultraviolet rays.

The usual explanation of fluorescence is that the short wave-lengths of ultraviolet on striking a suitably responsive body are reflected from it with lengthened waves, thus enabling our organ of vision to take cognizance of them. However plausible this explanation may be as regards the ultraviolet it fails to explain the fluorescent phenomena connected with X-ray and radium.

When the luminosity persists after the withdrawal of the exciting cause, the term phosphorescence is applied.[1]

During the past two years some very interesting experiments have been made, chiefly in Europe, with fluorescent coal-tar colors, especially with eosin and erythrosin. Living infusoria were impregnated with these colors and were found not to be much disturbed by them. If, however, they were exposed to the ultraviolet rays, they perished in a fraction of the time required to destroy those that had not been dosed with eosin.

It was but a step from these experiments to an actual trial of the effects of these colors in pathological conditions. When superficial lesions were first painted with fluorescing dyes and then subjected to the ultraviolet rays their action was found to be greatly intensified.

In this country experiments have been along somewhat different lines. One gentleman states that he administers fluorescent solutions internally to patients prior to the use of X-rays or radium and that the combination results in bathing the tissues with fluorescent light; and that this practice is advantageous as regards therapeutic results. I must confess most serious doubts as to the validity of both of these propositions. That fluorescent light is developed in the tissues under given conditions, even if a fact, would be exceedingly difficult to demonstrate and it certainly has not as yet been demonstrated by physical means. As a hypothesis, however, it may be acceptable to those who are prepared to concede or confirm the therapeutic results claimed by the author. In his clinical reports, however, I notice that in some instances he uses in connection with X-rays and with radium, solutions which though brilliantly fluorescent with ultraviolet rays, fail to respond to either X-rays or radium. If X-rays and radium will not produce fluorescence in these solutions outside the body I fail to understand how they can cause them to fluoresce when inside the body.

Turning from journal articles to books, I find that in one published within a year, a woodcut underneath which is an inscription reading: "Patient holding Piffard lamp (condenser interposed between coil and patient)." The cut shows the patient holding the lamp, but there is no condenser in evidence, and if there were, its position should not be between the coil and the patient,

[1] Some English writers give the name phosphorescence to the first luminosity and the name "after-glow" to our phosphorescence.

but between the terminals of the secondary winding of the coil.

In another work, published within a year, I find a number of statements with which I cannot agree, viz., "Matter is composed of particles or atoms or molecules of infinite size." . . . "Starting at the lower end of the spectrum where the waves are infinitely long," etc.

The waves at the lower (red) end of the visible spectrum have a length of about 1/35,000 of an inch. There are, to be sure, waves of greater length in the lower portion of the infra-red, but none that I know of to which the term "infinite" could with propriety be applied.

"In the sensitiveness of the electroscope to radiations of many kinds radio-active substances were discovered." It was by the aid of photography that radio-active phenomena were discovered by Becquerel in 1896. The electroscope came into play at a later date as a means for detecting radio-activity.

"The intensity of a sound is greater as the amplitude of the vibration of each particle of the air is greater, and the intensity of the light is greater as the amplitude of the vibrations of the air is greater." This will certainly be news to such physicists as teach that light undulations are phenomena pertaining not to the *air*, but to the all-pervading *ether*.

Referring to radium this writer says: "The alpha group consists of emanations," etc.

Prof. Rutherford while studying thorium discovered that it emitted a gaseous exhalation and to this gave the name of "emanation." Later it was discovered that a similar "emanation" proceeded from radium, which emanation is entirely distinct from the alpha radiation.

Referring to the actinometer this author says: "The principle of the actinometer involves the play of the rays of light upon a platino-cyanide of barium screen, and then determining the thickness of a solution of *ammoniated sulphate of copper* necessary to *cut off* the chemical frequencies" (Italics mine).

The context fails to throw any light on this curious sentence. The copper solution referred to is employed to "cut off" the non-actinic rays while it affords free passage to the actinic ones.

The paragraphs here quoted are but samples of some of the current literature connected with the subject of physical therapeutics, and I cannot but feel that they tend to retard rather than advance this branch in the confidence and estimation of the profession.

American Gastro-Enterological Association—At the eighth annual meeting of the American Gastro-Enterological Association, held at the Academy of Medicine, New York City, April 24 and 25, 1905, the following officers were elected for the ensuing year: President, Dr. H. W. Bettmann, of Cincinnati; First Vice-President, Dr. S. W. Lambert, of New York City; Second Vice-President, Dr. John P. Sawyer, of Cleveland; Secretary and Treasurer, Dr. Charles D. Aaron, of Detroit.

INTRAMUSCULAR INJECTIONS OF INSOLUBLE PREPARATIONS OF MERCURY IN SYPHILIS.[1]

BY HERMANN G. KLOTZ, M.D.,
OF NEW YORK.

It is over forty years since Scarenzio, of Pavia, recommended and employed hypodermic injections of calomel in the treatment of syphilis. For a long time he found but few followers outside of Italy, but since, in 1882 and 1883, Smirnoff and others reported good results obtained by modifications of Scarenzio's method, the interest of the profession was more generally aroused, not only in Europe but also in this country.

Since then many experiments with various salts of mercury and various vehicles have been made and an immense literature on the subject has accumulated principally in Austria, Germany, the Scandinavian countries, Russia, France and Italy. In these early stages the results were not always satisfactory, particularly in regard to abscesses. But the technic of the injections has gradually been improved; oil and the liquid variations of vaselin (albolene, benzoinol, etc.) have taken the place of glycerin or water alone or water mixed with glycerin or mucilage.

From the large number of mercurial combinations recommended by different authors, with few exceptions the choice has narrowed down to three; the metallic mercury in the shape of the gray oil and similar preparations, the neutral salicylate of mercury and calomel; the yellow oxide, which at one time had become quite popular, is hardly mentioned any longer. So we find at the present time the treatment of syphilis by injection of insoluble preparations quite common on the European continent, and adopted as the most favored application of mercury by numerous physicians of repute, particularly by friends of the intermittent treatment of Fournier, Neisser and others, largely supplanting soluble injections and inunctions. It is true, that a number of prominent syphilologists are still opposed to the method, or at least loath to recommend its regular use, although admitting its efficiency and, under certain circumstances, its advantages. Some, however, to a great extent have receded from their former adverse position, as for instance Kaposi (Path. und Therap. der Syphilis, 1891).

We find entirely different conditions in this country. This seems strange enough in the face of the fact that so many American physicians complete their studies at European seats of learning, and that we are so often reminded that with the growing intercourse between all civilized nations medicine has ceased to be local or national and has become a cosmopolitan unit. Up to within the last few years our periodical literature contained but few articles on insoluble injections and by no means all favorable ones; some treated promiscuously the soluble and insoluble injections, so that their conclusions often were

[1] Read before the New York Academy of Medicine, January 19, 1905.

uncertain. Quite recently, however, discussions of the question have taken place in medical societies in New York. Among the more recent hand- and text-books, which more than incidentally treat of syphilis some are entirely reticent of injections of insoluble salts, recognizing only internal treatment and inunctions, so Greene, in Bangs-Hardaway, and Lydston, in his recently published book (1904). Taylor, in the latest edition of 1904, after extensively and favorably commenting on injections of the bichloride says only: "Calomel and other insoluble salts of mercury have been used hypodermically, but their use is attended by many dangers, local and constitutional. Calomel injections will sometimes produce excellent results, but such can also be obtained from the use of bichloride injection and by inunctions. Calomel and other insoluble preparations of mercury, when injected under the skin may produce intractable salivation, severe enteritis and colitis, intestinal ulceration, infarction of the lungs and parenchymatous nephritis and anuria." Only Keyes and Chetwood (1900) have come out squarely in favor of the salicylate. More than usual attention has been given to the question by White and Martin, of Philadelphia, by the former in an extensive article published in the *University Medical Magazine*, May and June, 1893, which includes the opinions of members of the American Association of Genito-Urinary Surgeons, and in general condemns the practice of insoluble injection. This article appeared without any material change in Morrow's System (1893), also in White and Martin's book (1897) and without substantial change by Martin in the latest edition of Hare's therapeutics. Hyde and Montgomery (1900) endorse in principle the position of White and Martin, so that this may be considered as the predominating one in this country, as the one to be contended with in taking up the cause of the insoluble injections.

Under these circumstances it seems but natural, that the method so far has not become popular. A large proportion of the profession is held in ignorance of the progress made by the method or remains under the influence of a strong and widely spread adverse opinion or direct opposition, often founded more on theoretical reasoning than on practical experience. Therefore physicians, who are convinced of the advantage of insoluble injections and wish to employ them in their practice will feel reluctant to do so, because they would be exposed to the risk of being criticized by other physicians, in good or bad faith, for employing an unusual and not sufficiently authorized treatment, or of being held responsible or even accused of malpractice, with at least a semblance of justice, in case of some of the not always avoidable milder or more severe accidents. Consequently some physicians against their better conviction will not use the injection and thereby patients are deprived of the benefits of the method. Nevertheless, insoluble injection have of late been more and more employed in this city in private as well as in public practice. Therefore it seemed desirable and justified to open the question of the propriety of using insoluble injections before the medical profession of this country, and to do so before a body sufficiently prominent to command more general attention. In this sense I have asked for the privilege of reading this paper before you. Within the limited time allowed for the same I shall have to restrict myself to a general report of my experience with insoluble injections since 1886 and to a consideration of the criticism of the method as found in American literature, principally in the writings of Dr. J. W. White, of Philadelphia, as mentioned before.

Claims made by some enthusiasts, that insoluble injections were likely to effect an entire and permanent cure of syphilis in the shortest time and with the minimum amount of mercury I wish emphatically to repudiate. But I believe and expect to prove that in the insoluble injections we possess one of the most effective methods of bringing the organism infected with syphilis under the influence of mercury, a method however, destined to supplement rather than to exclude the other older methods. Therefore I have been using and expect to use in the future ingestion by the mouth, inunctions, soluble injections, baths, fumigations as well as the iodides and even sarsaparilla besides the insoluble injections according to the conditions of the patients and often depending on external circumstances. If it has been objected that there was no demand for further methods of treatment, the older ones being sufficient for all purposes, I reply, that we cannot have too many ways and means for the treatment of such on insiduous and protean disease as syphilis, the last disease in which a treatment by routine ought to be adopted.

Personally I was prompted to try insoluble injections solely by the demands and exigencies of my daily practice. Contrary to the opinion often pronounced in former times, that syphilis was generally of a much milder character in this country than elsewhere, I soon found myself confronted with rebellious cases in which the usual administration of mercury by the mouth was of no avail. Naturally turning to the old established inunctions, I soon found that but a small portion of my clientele were able to apply this method under conditions which would warrant a satisfactory result. It would be folly to deny the efficacy of inunctions if made according to the rules given principally by Sigmund, of Vienna, who practically saved the method from the disrepute in which it had fallen through long-continued abuse. In private practice the uncleanliness, the inability of employing a competent person to do the rubbing, the unavoidable exposure for men living in boarding houses or with their families proved the

principal obstacles. In hospital practice it was the tendency to salivation, ever and ever recurring in spite of all precautions which caused frequent interruptions and thereby undue prolongation of the period of treatment. I then resorted to the soluble injections mostly of the bichloride and the bicyanide, the latter being much less painful and more effective in later manifestations of the disease. The results as a rule were satisfactory enough, but in private practice the necessity of frequent, almost daily repetition of the operation for months, with the incidental expense of money and time, proved an objectionable feature. The pain extending over several hours following the injection and the soreness of the back in the recumbent position at night gave rise to complaints from the hospital patients, among whom stomatitis was by no means of rare occurrence. So when the insoluble injections were introduced into practice, allowing of longer intervals and a smaller number, and promising more energetic and more lasting efforts, I did not long hesitate to give them a trial.

A few applications made in my service in the German Hospital gave me an opportunity of carefully observing the local and general consequences of the injections before I began their use in my office. In my dispensary practice I have used them only exceptionally, principally because I have always been convinced that it requires more educated and intelligent patients to appreciate the advantage of the treatment and to be willing to bear and condone the incidental inconveniences. In the hospital practice I have introduced insoluble injections as one of the regular methods only after several years of experience in private practice. The results were excellent and the patients neither objected nor complained. However, my experience has primarily been gained in private practice with a better opportunity not only for watching the immediate effects but also for continuing the observation of the patients long after the cessation of treatment. At the meeting of the American Dermatological Association in 1889, I presented a report[1] on my experiences with injections of calomel, the yellow oxide and a few of the salicylate to the number of 210 made on 23 patients. The remarks made in the discussion by some of the members were not very encouraging, still I had become sufficiently convinced of the value of the method to continue its practice. Up to the end of 1904 I have records of 2,500 injections made on 204 patients, all male but six; 2,112 of the salicylate, 150 of the yellow oxide, all from the early period, 216 of calomel, partly from the beginning of my experience, partly from the last few years, and three of gray oil. I have included 19 injections of a five per cent. solution of the bichloride, as recommended by Lukasiewitz as a substitute for the insoluble injection. More severe local symptoms and the greater tendency to salivation caused their early discontinuance. I must omit all remarks on the technic of the injections owing to the limited time allowed for this paper, also the details of many interesting cases. In the paper read before the American Dermatological Association, mentioned before, the syringe and the injection itself are minutely described, and I should have to add but very little to what I have said there. The age of the patients ranged between eighteen and sixty years. There were three below twenty years; 89 between twenty and thirty years; 78 between thirty and forty years; 24 between forty and fifty years; 10 between fifty and sixty years.

The number of injections varied from 1 to 42, sometimes distributed over three and four years. Of those who received but one injection I shall speak later on. The number of injections given in the single cases were:

1 injection in 21 cases.
2 injections in 10 cases.
3 and 4 injections in 18 cases.
5 to 10 injections in 66 cases.
11 to 15 injections in 27 cases.
16 to 20 injections in 21 cases.
21 to 25 injections in 16 cases.
26 to 30 injections in 9 cases.
31 to 35 injections in 7 cases.
36 to 42 injections in 9 cases.

or altogether these received:

49 less than 5 injections.
66 from 6 to 10 injections.
48 from 11 to 20 injections.
41 from 20 to 42 injections.

The usual dose was the entire contents of a syringe measuring exactly one cubic centimeter; representing 10 centigrams (one grain and a half) of the salt suspended in oil or liquid vaselin. If the patient had not been taking mercury before, usually only half a syringe was given at the first injection, but even later on the quantity was occasionally reduced to three-quarters or half a syringe. The injections were given at intervals of one week, whenever symptoms of syphilis were present, up to their disappearance; hereafter two to four injections were added at intervals of ten to fourteen days. Ordinarily not more than ten injections were given continuously except when the intervals had been longer. Such a series was followed by an intermission of several months without any treatment, so that patients who were more or less exclusively treated by injections received four to six series from of from six to eight injections up to about the end of the second year; under normal or ordinary conditions this was considered sufficient treatment. I may briefly point to the small amount of mercury involved in such a treatment. As the salicylate represents 59 per cent. of mercury, 10 injections of 10 centigrams within ten weeks are equal to 59 centigrams, that is approximately 10 grains of mer-

1 Journal of Cutaneous and Genito-Urinary Diseases, VIII, February to April, 1890.

cury, equal to the maximal dose of 10 blue pills; the highest number of injections received by one patient, 42, represent not quite 2½ grams or 40 grains of mercury. A number of patients who had been treated by salicylate injections in Germany and the Scandinavian countries were glad to have the same treatment continued after their arrival in America.

In a number of cases injections were not resorted to until the end of the first or second year after the infection, when either more severe symptoms appeared during internal treatment or milder symptoms on the skin or mucous membranes incessantly recurred. So-called normal or regular cases during the first two years are hardly available for any definite judgment of the value of a treatment, because it is a well-known fact that a similar course of the disease may be observed with every method, and even occasionally without any treatment at all. The abnormal, unusual and precocious malignant cases offer a better field for the critical test of a particular treatment. It would have been interesting to report more fully cases of iritis, early paresis of the eye muscles including pupillary disturbances, affection of the optic nerve, etc. Among the malignant cases were several of precocious ulcerating syphilides, one in a woman; some were promptly healed, in others at least temporarily satisfactory results were obtained; some, however, showed that intractability and obstinate resistance against mercury and often even iodine in any form—peculiar to such cases. In quite a number of the cases heretofore referred to, other methods of mercurial treatment were freely alternated with the insoluble injections, including iodides, according to the condition of the patients and often depending on external circumstances like opportunities for going to some watering place here or in Europe. I do not consider it judicious to continue insoluble injections whenever after three or four no impression on the manifestations of the disease has become apparent, no more than I have been able to convince myself that beyond a certain limit an increase of the dose or number of inunctions will prove effective. An intermission of several weeks or months, with iodides or quinine and other tonics, will render the patient better prepared for the renewal of mercurial treatment. Nor can I agree with Dr. Sinclair who has recently recommended the continuous administration of salicylate injections. In 129 of my patients the injections were made in the first two years after infection, in 15 in the third year, 18 in the fourth and fifth years, 22 between five and ten years, 11 between ten and fifteen years, four between twenty and thirty years, in 9 cases the term of infection could not be ascertained, therefore in 64 cases they were made after the third year. The manifestations which were the objects of treatment in these cases were periostitis, 3; gummata of extensor muscles of thigh, 1; gumma of scalp, 1; of lip, 2; lip and tongue, 4; gummatous processes of nose and palate, 6; in diffuse superficial ulcers of pharynx and palate, 3; tubercular syphilide, 13; gummatous ulcers of leg, 6, and of other regions, 4; gumma of the testicle, 2; cerebral syphilis, 4. All these lesions are usually classed as tertiary and generally considered amenable to treatment by iodine alone or in combination with mercury. Some of these patients were given iodine with the insoluble injections, but within the last years, since I have become more and more assured of the powerful influence of the insoluble injections, I have more frequently discarded iodine treatment and have trusted to the influence of the mercury alone. Quite a number of patients, principally those affected with tubercular syphilides had been treated with iodine or mixed treatment for years; always the most obvious features of the lesions would promptly disappear only to reappear or become recrudescent after a short interval, but they were finally and permanently cured by injections. Gummatous affections of the bones and muscles, which were ever and ever recurring for twelve years were finally cured by insoluble injections in a case which has been fully described by me as a case of reinfection of syphilis in a paper published in the July issue of the *Journal of Cutaneous Diseases* for 1904. From my limited experience with cerebral lues I am inclined to consider it a very favorable field for insoluble injections, particularly of calomel. In these as in others of such late manifestations I have often been surprised or almost puzzled by the prompt, really marvellous improvement after the first insoluble injection. In fact, for years I have not been able to convince myself, that the so-called tertiary lesions of syphilis were less amenable to mercury than the earlier ones and had to be treated principally with iodides. White has questioned the reported benefits in all forms of tertiary syphilis, he says (Morrow II, page 769): "It is contrary to the accumulated experience of the profession to find in late syphilis gummata, periosteal nodes, osteitis, tubercular syphilides, and other phenomena of similar character yielding promptly to the use of mercury alone. It is of undoubted value then as an adjuvant to or in conjunction with the iodides, but on both theoretical and clinical grounds cannot be expected to supersede them." However, he mentions as possibly correct the claim of Jullien that one calomel injection will be sufficient clearly to define the diagnosis of syphilis within eight days, in cases where an early differentiation between syphilis and malignant or tuberculous processes is desired. From my experience I cannot help believing that the want of success in the mercurial treatment of those late forms has been due to the insufficiency of the means employed; I can only advise those who doubt the effectiveness of the insoluble injections to try them without prejudice in suitable cases.

Besides the intended and welcome therapeutic

effects of the insoluble injections there occur to a certain extent some less desirable by-effects, which furnish the principal basis for the objections which have been made against their use. White states, that "locally there is almost always pain of greater or less severity, sometimes subsiding soon after, but oftener increasing or lasting for hours or even days. There is almost always an inflammatory reaction, which, when slightly developed, causes merely a flush around the needle puncture, and a feeling of heat or itching." I find no pain resulting from the injection itself if properly made nor any flush around the needle puncture nor inflammation of the skin. The deposit of the insoluble substance acts as a foreign body and naturally is somewhat painful on pressure, the more so the nearer it is located to some nerve or blood vessel. In such instances more or less severe pain may be felt extending along the extremity, usually not lasting over several hours. A number of patients have experienced absolutely no inconvenience, some have been out riding on horseback or on the bicycle without trouble on the very afternoon after the injection had been made in the forenoon—by the way, not a commendable practice.

These effects depend on the anatomy of the gluteal region, on the development of the subcutaneous fat and the muscles, which furnish a natural protection against pressure. Patients with flat nates, flabby muscles and skin, for that reason a majority of elderly or poorly nourished younger people, are not favorable objects for the injections. "Oftener," continues White, "there is an exudation of lymph with the formation of a hard, horny nodule, moderately tender to the touch and very painful if subjected to continuous pressure. It is usually absorbed if asepsis has been good, it rarely or never disappears under two weeks, often persists for a longer time." The formation of a hard nodule is entirely absent in a great number of cases, almost regularly after the salicylate and frequently after calomel, but a diffuse resistance can be felt at the seat of the injection, sometimes, however, at some distance below the point of puncture. There is some inconvenience in putting on the shoes and stockings; in patients who have a sitting occupation, the lower portions of the nates near the tubera ischii have to be avoided, and some occupations which require continuous going up and down stairs, etc., are not favorable to injections. Often it is impossible after a week to find the seat of the last injection. In a number of cases, particularly after calomel, more or less hard nodules are indeed formed, but they rarely cause much trouble after three or four days and gradually disappear entirely, and in general, after some time no traces even of numerous injections can be found by any outward examination, nor have I ever heard of lasting functional disturbances. White further says: "In a certain proportion of cases the nodule goes on to softening, to suppuration and the formation of an abscess; its disintegration is sometimes attended with extensive sloughing and cellulitis." In one of my cases two patches of superficial gangrene of the skin were observed, the immediate cause of which was not very clear. I have published the history in the *Archiv f. Dermatologie*, in 1903 (V. LXIV, 265). Abscesses, which according to White occur in a certain proportion of cases, I have seen three times within the first three months of my injection practice, one was absorbed without breaking, the other two did not cause any acute inflammation. Since then I have but once seen an abscess after calomel. It was probably due to the faulty preparation of the suspension which was immediately thrown away. This makes four abscesses among 2,500 injections, that is less than one-sixth per cent. In a few cases, one of them a physician, salicylate injections were followed by a diffuse swelling with redness and heat, almost resembling erysipelas, but under treatment with ice and ichthyol they disappeared without any suppuration. In my experience soluble injections have caused considerably more pain, swelling and infiltrations; and others have also seen abscesses. Circumscribed gangrene of the cutis, healing very slowly, is not a rare accident with the bichloride if the injection is made into the cutis itself.

Constitutionally, insoluble injections in large number, probably a considerable majority of the cases, give rise to a slight malaise, moderate headache, reduction of appetite, disinclination to smoking, a certain lassitude, sometimes accompanied by fever, coming on during the first twelve to twenty-four hours and passing off within thirty-six hours. Stomatitis, according to White not infrequent, sometimes of a grave variety—I state this deliberately—is practically totally absent after injections of the salicylate; after calomel it sometimes appears in a mild degree but much less often than after bichloride injections. Still once after calomel and once after the salicylate I have observed the fulminating type of salivation probably due to the complication of infectious tonsillitis. These cases I have fully described in the Festschrift for Prof. Pick in 1898 (*Arch. of Derm.*, XLIII, 407), together with a similar one occurring during inunctions; in all three cases injections and inunction were later continued without further trouble. As in all kinds of mercurial treatment enteritis and colitis have occurred after insoluble injections, but altogether in a comparatively small number of cases; more often, to my surprise, in recent years, usually after the first injection, in some instances gradually showing less intensity, in others returning only in intervals; the symptoms: frequent evacuations, sometimes bloody with tenesmus were never really grave and usually ceased after twenty-four hours. One patient finally received a series of calomel injections without any disturbance of the

bowels. The last danger mentioned by White are two cases of pneumonia reported by myself, presumably due to oil embolism. This is not strictly correct, since I stated (*Journ. Cut. Dis.*, VIII, 1890, 135) that one of the patients presented the symptoms of pneumonia, although no physical signs of infiltration of the lung could be detected. They were undoubtedly cases of embolism into the lungs similar to a number of others since published in literature. These emboliSms I have observed altogether 12 times, twice in women; eight occurred up to the end of 1897 out of 1,072 injections, they were published in the previously mentioned Festschrift; since then among 1,428 injections I have seen them only four times. They are probably the most disagreeable incidents of the insoluble injections and so far no absolutely safe way has been found to avoid them, but all authors agree that they are not so dangerous as has been stated, patients usually recovering in three to four days without any further trouble, The absence of almost every sensation at the seat of the injection and an unusual efficacy as shown by the diminution of the specific symptoms somewhat compensate for the disagreeable features. Alarming spells of fainting, as mentioned by Lewin, after bichloride injection due to injections in a vein, I have never seen with the insoluble preparations.

Besides the dangers mentioned by White, parenchymatous nephritis and anuria are ascribed to the insoluble injections by Taylor (Third Edit., 1904, p. 963). Although I have carefully watched the urine during the administration of the injections, I have never seen them followed by albuminuria or other symptoms of parenchymatous nephritis or anuria: albumin occurred in one patient, but finally I found that it was due to long rides on the bicycle and was appearing under this condition even when no injections were given. One patient who for years had had a slight albuminuria received six salicylate injections without any increase of the albumin; two cases of diabetes were not in any way affected by the salicylate. It is a fact that several deaths among thousands of insoluble injections have been reported in Europe; in some the abuse of the method was rather the cause than the method itself. Death has also been reported from inunctions, but such exceptional accidents can hardly be considered as absolutely forbidding a certain treatment, any more than operations are condemned on account of a moderate percentage of fatal consequences. It cannot be denied, that an accumulation of mercury may take place, if for some reason the injected drug remains inert at the seat of the injection, so that under a change of circumstances larger quantities may suddenly be absorbed into circulation. Indeed it has been claimed as a superiority of the insoluble injections over the soluble ones, that the elimination of the mercury is slower and that it continues over a longer period after the cessation of the treatment. But this has also been demonstrated to a certain extent of inunctions. As it has been shown before the actual quantity of mercury ingested by insoluble injections is rather insignificant and therefore the danger is not so great as has been claimed. Nevertheless a careful observation of the patient and particularly watching the functions of the kidneys is necessary. Fortunately the method itself furnishes the opportunity for such observation. When manifestations of syphilis are present, the improvement following the injections usually is the best proof of the assimilation of the mercury; in the absence of notable changes the possibility of non-absorption has to be considered and the injections ought not to be continued indefinitely.

Having given due prominence to the objectionable features I shall point out only the advantages accruing to the patient besides the direct therapeutical effects: His stomach and mouth are not exposed to the influences of the mercury, he is able to attend to his business without interruption, to avoid detection, uncleanliness; and frequent visits to the physician, and enjoys long intervals free of treatment. To an intelligent and sufficiently educated patient you can explain these advantages together with the disadvantages and in the majority of instances he will not object to the treatment. I cannot agree with the statement of White that "the objection of the patients themselves would in this country prove a serious obstacle to the practical success of the method. Even our hospital and dispensary cases constitute a much more independent class than the same sort of people abroad and cannot be subjected to wholesale experimentation with the same impunity. In private practice here it is certainly difficult of adoption, and while it might be attended by the rapid disappearance of symptoms, there would often be an equally rapid disappearance of patients." The very fact that I was able to continue this treatment for nearly twenty years and to give large numbers of injections to single patients proves that it is not so difficult to adopt it in private practice. Among my patients 85 were born in America, 29 of strictly American descent; they were the last to complain and to object, but rather declared, that if they needed more treatment, they would always prefer the injections; the other 56 were of German or Hebrew descent. Neither the native born nor the 119 foreign born, mostly Germans (Swedes, Danes, with a sprinkling of French, English, Irish, Italian, etc.), belonged to the lower classes of our population, mostly to the middle classes; as the following table shows:

Agents, pawnbrokers etc.	8
Artists, architects, engineers and draughtsmen, stenographers	9
Bakers, butchers, pastry cooks, etc.	8
Bankers, business men, merchants and manufacturers	52

Barbers	5
Barkeepers, cigarmakers, restaurant and saloonkeepers	11
Bricklayers, carpenters, painters, sailors	4
Chemists, dentists, druggists, physicians	8
Customhouse, police, postoffice, teachers	4
Clerks	50
Diplomatic service	2
Furriers	3
Journalists, publishers	3
Lawyers	6
Lithographers and printers	3
Machinists	4
Musicians	7
Waiters	8
Women	6
Unknown	3
Total	204

I do not believe that I have lost any great number of patients worth keeping by the use of the injections, certainly not as long as I kept to the principle not to begin them until I was somewhat acquainted with the patient and had been assured of his confidence. Among the 21 patients, who received only one injection, all but ten continued under my observation. With one exception these ten had been strangers to me and I felt tempted to depart from my principle by the urgency of the symptoms or by other circumstances, but even in those ten cases I have no proof that the injection was the cause of their disappearance. On the other hand, I can affirm that among the other patients, particularly among those who received a larger number of injections, there were found the most devoted, conscientious and grateful patients; many of them continue their relations with me many years after the cessation of treatment. I have no doubt, that even in the public service, if properly approached, patients will object very little to the insoluble injections, particularly if it becomes known that the treatment is more commonly used in private practice and not reserved for those who are compelled to seek advise and treatment in public institutions.

42 East Twenty-second Street.

A CASE OF SYPHILITIC PSEUDOPARALYSIS.[1]

BY JACOB SOBEL, M.D.,
OF NEW YORK.

The osseous changes common to hereditary syphilis are most frequently manifested in the form of a diaphyso-epiphyseal lesion, that is, an osteochondritis of the femur, humerus, tibia, radius or ulna. This manifestation, when associated with other signs of congenital lues admits, as a rule, of a ready diagnosis, but when present as an initial symptom, so to say, it renders a diagnosis not only very difficult, but at times impossible, for some period. The following is a case in point:

1 Presented at the Pediatric Section, Academy of Medicine, February 16, 1905.

Case.—Helen Z., aged three weeks, bottle-fed since birth, was brought to my dispensary service at Lebanon Hospital on December 1, 1904, with a history that for the past four days the child does not seem able to move its left arm. The child was apparently well until four days ago, when some friends who were visiting the house played with it and pulled the arm, as the guardian thought. The patient was the first-born. The labor was normal and in-so-far as the guardian knew, the parents were healthy. At the first visit both my associate and myself paid particular attention to the examination of the left upper extremity, examining carefully the clavicle, shoulder, elbow, wrist and hand; we found no subluxation, no fracture, no dislocation, no swelling of any kind. There was, however, a drop-wrist with its characteristic deformity and disability. Ticking of the palm caused slight movement of the fingers. No callus pressing on the musculospinal nerve could be detected, nor was there pain on pressure over any of the joints. In addition to the drop-wrist there was a slight inward rotation of the arm suggesting the upper arm type of birth paralysis, but the fact that the condition had appeared during the third week of life, and that there was no atrophy, ruled out Erb's paralysis.

A physical examination of the patient at this time was absolutely negative, not even a palpable liver or spleen. A tentative diagnosis of traumatic neuritis was then made, and gentle massage with cocoa butter and rest were ordered. The guardian returned on two subsequent visits, two and three days apart, to report some improvement; on both of the latter visits, examination of the extremity and especially of the wrist-joint revealed nothing except some slight pain on passive movement. All other joints were free and painless and the gums were normal. There were no evidences of rickets. On December 10 there was detected a distinct crepitation at the lower end of the radius and ulna, at the junction of the epiphysis and diaphysis—an epiphyseal separation; the case was then transferred to the surgical service. One week later the face was partially covered with a papulopustular eruption, with adherent crusts here and there, especially around the mouth; the crusts resembled those of impetigo contagiosa but were easily differentiated by their situation upon a copper-hued base; the body showed a maculopapular ham-colored eruption and the skin of the soles and palms was desquamating and thickened; there were decided coryza, snuffles, mouth breathing, fissured lips, in a word, the clinical picture of congenital lues. The spleen and liver at this time were distinctly palpable. Then the diagnosis of the original condition became clear of course and the cause for the pseudoparalysis became very evident. Subsequently distinct anal condylomata made their appearance. The forearm was immobilized with lateral splints by Dr. Reiss, the surgeon in charge, and the lues was treated in the dermatological

service of Dr. Gottheil, by the administration of calomel gr. 1/20 to 1/10 three times daily and by the twice daily application to the umbilical region of a pea-sized piece of white precipitate ointment covered with a flannel abdominal band.

In three and a half weeks no false point of motion or crepitation was detected and in four and a half weeks the surgical aspect of the case was closed. Under the aforementioned antispecific treatment rapid improvement was made.

It seems to me that the sequence of events in this case—pseudoparalysis (epiphysitis), epiphyseal separation, and lastly the cutaneous outbreak, is interesting and instructive and warns us to be on our guard in diagnosticating mono-articular involvements in young children. When brought face to face with a similar case in the future, after excluding trauma, fracture, sepsis, perhaps infantile scurvy, it may be well to turn our thoughts to the possibility of osteochondritis epiphysaria luetica neonatorum.

274 Lenox Avenue.

TWO CASES OF GASTROSTOMY WITH EXAMINATION OF STOMACH WALLS BY MEANS OF THE CYSTOSCOPE.[1]

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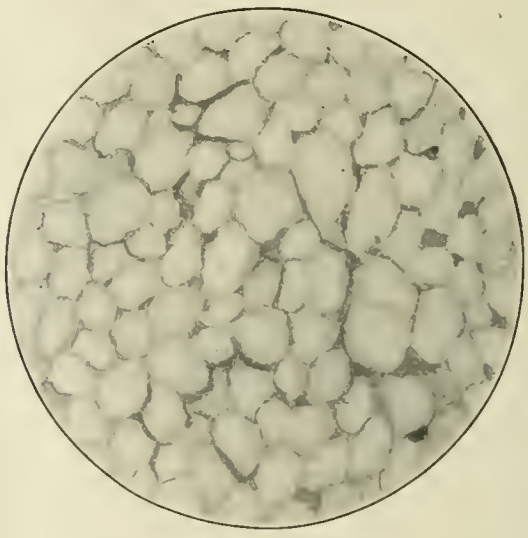
In reporting these two cases, I think we now have a very valuable method of obtaining information about the stomach in similar cases.

Case I.—P. K., aged forty-one years; nationality, Ireland; admitted to Hospital December 13, 1904; occupation, orderly. Family history is negative. Personal history: Denies any venereal disease; chews tobacco; smokes moderately; takes a moderate amount of alcohol, according to the patient, three glasses of beer daily,—taking this directly into his stomach by means of a rubber tube leading into the fistulous opening of the stomach. Previous illness: Had malaria eleven years ago; typhoid fever nine years ago; he was sick at that time for three months. During the early part of his convalescence from this fever the patient noticed he had some slight difficulty in swallowing. This difficulty increased until, at the end of the fourth month, he could not even swallow liquids and had to be fed per rectum. He lived on rectal feedings for the next three months entirely, and during this time lost considerably in weight. At the end of this time he was operated upon, a gastrostomy being performed. Since then the patient has fed himself entirely through the fistulous opening. Since the operation patient has had no difficulty in maintaining nutrition, or has he had any gastric disturbances; his desire for food has always been good, and he is able to take all kinds of food. His method of eating is a very interesting one, in that he gets the full benefit of his saliva and also the pleasure of the taste of his food. He first masticates his food thoroughly, then expectorates the mass into a cup, in the meantime having inserted a funnel into the tube leading into the stomach, he empties as much of the contents of the cup as will half fill the funnel, then, taking a blunted stick, he pounds the contents of the funnel into his stomach.

At the time of the operation he weighed 92 pounds; at present he weighs 190 pounds. The patient, on being given some water to swallow, has a violent reflex cough within a few minutes, retches and expels the water which he has a tendency to swallow; upon passing an esophageal bougie, an obstruction was met 20 cm. down the esophagus, which could not be passed.

Method of Cystoscopic Examination.—Patient does not eat any food for six hours preceding the examination, in the meantime washing his stomach thoroughly until the water returns absolutely clear; then his stomach is filled with water, patient lying flat upon his back, and the cystoscope (Cabot) introduced through the rubber tube into the fistulous opening. The electric light is then turned on. The first thing brought into view is the walls of the fundus of the stomach (Fig. 1), the lining mucous membrane in this case looking pinkish-white and appearing in patches, giving the whole the appearance of large, flat, irregular cells and thrown into the characteristic rugæ. On close observation it was seen that the peristalsis took place in a slow rhythmic motion from the cardiac end toward the pyloric, namely in the longitudinal axis of the stomach; by moving the cystoscope toward the cardiac end this was brought into view. Here the appearance of the mucous membrane gave the impression of apparently smaller masses (Fig. 2), the folds here running into a very shallow funnel about 1½ inches deep, the cardiac orifice being closed and having an irregular outlet. When the patient was told to retch, the orifice opened about one-fourth inch in diameter; the pyloric orifice is also easily found by tracing the

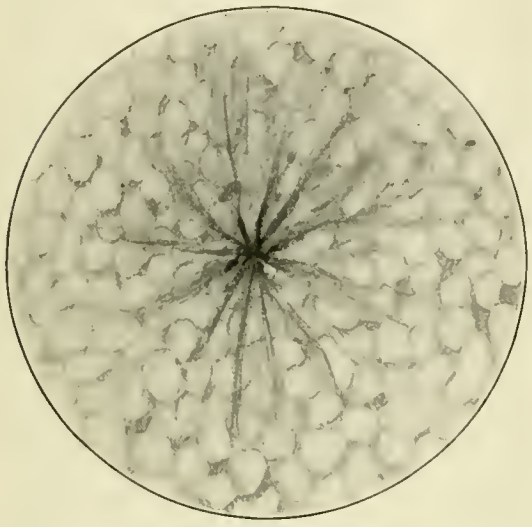
Fig. 1.



Fundus of Stomach.

lesser curvature of the stomach, the mucous membrane having the appearance of the cardiac end except that the funnel is not so narrow, or so long as that of the cardiac end, the size of the cellular masses apparently being the same as that of the cardiac end. The orifice was never com-

Fig. 2.

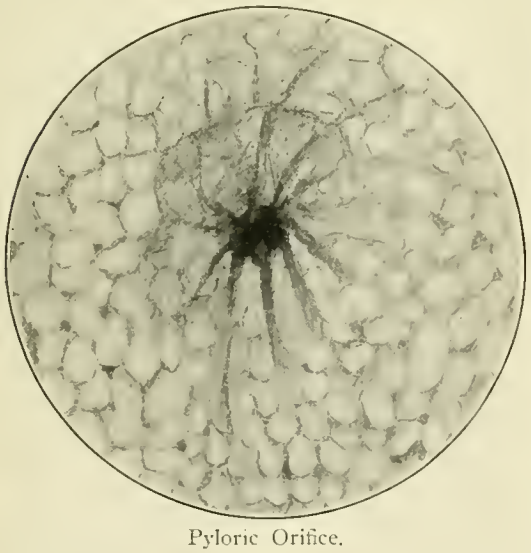


Cardiac Orifice.

pletely closed and bubbles of air and mucus could be seen going through. The diameter of the orifice appeared to be about one-half inch, the pyloric ring being easily seen (Fig. 3).

To see if there really existed an opening through his esophagus, no matter how small, the

Fig. 3.



Pyloric Orifice.

patient, while under operation with the cystoscope, was given a small amount of dilute methylene blue solution to drink, and he attempted to swallow it, the cardiac orifice in the meantime being very closely watched for about twenty minutes, and during this entire time no fluid whatsoever came through the cardiac opening; then the patient was told to retch, and by this means the cardiac orifice opened, but, nevertheless, no fluid came through, the water in his stomach not having the faintest tinge of blue, so that evidently the patient has complete obstruction of the esophagus due to a stricture following typhoid fever.

Case II.—H. H., aged thirty-four years, Russian; occupation, pedler; admitted to hospital December 13, 1904. Family history negative. Personal history: Uses alcohol moderately; does not use tobacco in any form. Previous illnesses: Had smallpox when a boy; about the same time had some difficulty in urination; was operated upon for this; does not know the nature of operation; otherwise his venereal history is negative; says he never was sick until six months ago, when he commenced to have some pains in the back and soon afterward noticed some difficulty in swallowing. Present illness: Patient came to hospital, complaining of severe pains in his back and stomach, also difficulty in swallowing; he is unable to lie on his left side, has lost considerably in weight, and has a cachectic appearance; he has no cough and is not dyspneic; no pains in the chest; appetite is very poor; has not vomited; has had diarrhea for the past two weeks; the character of the pains in his back are of a dull, continuous sort, with exacerbations of lancinating pains radiating from the small of his back anteriorly to the pit of his stomach and up toward the cardiac region.

Physical examination.—Patient extremely emaciated, cachectic in appearance; few scars on both legs and enlargement of the left supraclavicular, and axillary glands; the pupils react equally to light and accommodation, no nystagmus, conjunctiva anemic and slightly jaundiced; tongue clean; chest barrel-shaped and marked retraction of supraclavicular and intercostal spaces. Lungs, slight dulness over left apex anteriorly, otherwise negative. Heart, apex beat neither visible nor palpable, located by means of the stethoscope, one-half inch within midclavicular line; outlines of heart normal, slight roughening of the first sound, second aortic accentuated. Pulse, quick, regular, slight amount of arteriosclerosis. Abdomen, tenderness in right hypochondrium; no mass is felt. Slight rigidity of recti. Liver edge is palpable; reflexes normal. Blood examination shows red cells, 2,000,300; moderate poikilocytosis, few normoblasts, microcytes and macrocytes, hemoglobin 35 per cent., leucocytes 15,500.

On cystoscopic examination, after some effort, a limited view of the stomach was obtained. At first the fundus was seen, the walls being of a red, glary appearance, without the apparent cellular characteristics of the first case; the rugæ were easily seen and had the same appearance, as regards direction, as the first case; the pyloric orifice was then brought into view, and here also the lining layer had a red and very much inflamed appearance, the pyloric funnel

being about one inch wide at the base, the apex being one inch wide; on account of the slant of the fistulous opening, it has been impossible, up to the present date, to obtain a view of the cardiac end.

In this case, on attempting to pass an esophageal bougie, an obstruction was met about 30 cm. down the esophagus; the patient, however, has not a complete obstruction of the esophagus, as he has been able to swallow some liquid food with considerable difficulty, the nature of the obstruction being probably a malignant stricture.

THE CONTINUOUS CURRENT IN RELATION TO INFLAMMATORY EXUDATES.[1]

BY MARGARET A. CLEAVES, M.D.,
OF NEW YORK.

The striking and hypnotic phenomena attendant upon a display of high frequency and high potential electromotive forces have attracted the widespread attention of the medical profession; and the average practitioner, whether practising as an electrotherapeutist or whether without knowledge of the nature and potency of an expenditure of electric energy as a therapeutic measure, is disposed to regard these manifestations of electric force not only as the best, but as the sole means to the end, ignoring completely the continuous (galvanic) current, a knowledge of which is fundamental to a study of the physical phenomena of electricity as well as its therapeutic uses. Doubtless the perfection of mechanisms for the administration of static and high frequency currents, and the ease of their application has contributed largely to this state of affairs. The rank and file of the younger physicians, both in point of time and experience are, unfortunately, frankly ignorant of, or at least chaotic in their knowledge, of this fundamental manifestation of electric force.

For the past fifteen years the writer has had the various manifestations of electrical energy in daily use, save high frequency manifestations, which have been in use for but eight years, in a private and clinical practice covering a very wide range of conditions. In the class of cases to be considered in this paper, as well as many others, the best results are always obtained by the use of a continuous electromotive force.

The effects which concern the physician most are (1) physiological and (2) chemical. It is possible that there are physiological effects due to the nervous stimulus, which can be distinguished ideally, at least, from those due to direct chemical or physical action. Long since, however, the opinion was expressed by DuBois-Reymond that excitation with the continuous current was nothing more than the first stage of electrolysis in excitable tissue, and the consensus of opinion to-day is that this is the correct definition of the physiological action of the current. A consideration of the chemical effects of the current, therefore, precedes that of the physiological. The rationale of the action of the current upon inflammatory exudates is based upon its chemicophysical action.

There are four ways in which electrolysis can affect, in the living body, such tissue as muscle by its chemicophysical action: (1) By the chemical effects of the products liberated at the electrodes or in the substances of the tissues; (2) by the removal of electrolytes, chiefly inorganic substances which are necessary for the vitality of the tissues, leading to increased absorption of the elements, and, perhaps, in consequence, to increased activity of the general nutrition in the tissue, or if the action be more intense, to diminished vitality, degeneration and death; (3) by cataphoresis, leading to increase of transferred substances around the cathode, and diminution around the anode and the consequent increase of eliminating or absorbing activity, by which a tissue returns to healthy equilibrium, or to any of the results which follow the disturbance of equilibrium beyond the limits of health; (4) by raising the local temperature in both cases, but the physiological change may be very different.[1]

So far as conductivity is concerned the human body may be regarded as a .6 per cent. of a one per cent. solution of common salt. It conducts by reason of its inorganic constituents, which, in connection with the fluids are in a state of ionization, a condition which renders them the best form of an electrolyte. Whenever a current passes through a tissue or proteid solution it is conducted almost entirely by the salts contained therein. Chemical effects produced on the proteid constituents are due to secondary actions of the products of electrolysis of the salts. Therefore when a current passes through living tissue it produces two effects—physiological and chemical. The first or physiological effect is dependent on the second or chemical. The physiological follows the changes which take place in the tissues as the result of the chemical action. From a current of short duration a physiological action is always produced, as for example, with a shock from an induction coil. Therefore this is selected to establish the function of excitable tissues. Such a shock, however, while adequate to excite maximum muscular contractions, is capable of very slight electrolytic effect, *i.e.*, an effect characterized by the products of electrolysis at the poles.

With the continuous current, however, a very different effect is produced, when it is gradually increased from subminimal strength. There is no such excitation of excitable tissues.

So far as it is at present known no current can pass through such a mass of materials as that of which the human body is composed without effecting electrolytic decomposition, or, in other words, the only medium of conduction in such a mass is chemical decomposition or electrolysis. It does not matter whether it is a continuous or an al-

[1] Read before The Section on Medicine, New York Academy of Medicine, December 20, 1904.

[1] On Electrolysis of Animal Tissues. G. N. Stewart, Studies from Physiological Laboratory, Owens College, Manchester, England.

ternating current, electrolytic effects are produced only in the medium immediately surrounding the poles or electrodes, but also in the intrapolar or intervening tract. But with all forms of alternating electromotive forces, whether of low or high frequency and static electricity as well, little, if any, accumulation of electrolytic material takes place at the poles. It is true that the electromotive force produced by a static machine tends to the production of a continuous current, but to decompose a single drop of water by this means requires an expenditure of energy totally at variance with the amount of chemical work done; while the very small, comparatively speaking, electromotive force of a series of chemical generators or a continuous current dynamo causes this chemical action instantaneously with an accumulation of its products at the poles. A high frequency current causes the body to be traversed by currents of great ampèrage without sensation, but here again there is no polar action as with the continuous current. The latter energy judiciously expended will do the work of the former but an expenditure of the energy of high potential and high frequency currents will not produce the chemicophysical effects of the continuous current, characterized as it is by polar action, *i.e.*, the accumulation of the products of electrolysis at the poles, and upon this property therapeutic indications are based. Profound chemical changes are established which may result in the death of the tissue, as, for example, in the puncture of a mole. Here the current is turned on gradually. There are no muscular contractions, but in a few moments' application there is complete destruction of the growth by the chemical action of the current, and the resulting interference with the circulation.

A given quantity of electricity passed in the form of a series of swift shocks, by an unidirectional current, may exhaust the muscles and nerves, and lead to gradual or sudden death. The amount of chemical decomposition caused by the current will be the same in both cases, but the physiological changes will be very different. It is impossible to dissociate the two chemical effects of the current, electrolysis and phoresis, as they are closely allied, and do not take place independently the one of the other.

By electrolysis is understood an electro-analysis of the fluids and salts of the tissues, which serve as electrolytes. By phoresis is understood that particular kind of osmose due to the action of an electric current passing through a porous septa no matter what its direction. But the direction of the current is from the positive to the negative, or from the anode to the cathode, and, therefore, cataphoresis is the most characteristic phenomena of the phoretic action.[1]

The action of the physical effects of the current may be formulated as follows: Electrolysis chemically and cataphoresis mechanically alters the amount and distribution of salts necessary to the proper nutrition and function of the various parts of the living organism. By the latter there is a direct transference of the fluids and salts by way of the cell walls, muscle septa, coats of blood vessels, sheaths of nerves, skin, serous and mucous membranes, in fact all animal membranes which from the physical point of view are all the very best kind of porous diaphragms. Primarily this action takes place throughout the tissues interposed between the electrodes (not necessarily the nearest way but along the path of best conduction), but secondarily its influence is felt beyond the interpolar region. Just as it is impossible for a local hemorrhage to exist without its influence being felt beyond the immediate site of the hemorrhage, just so it is impossible to drain a part cataphorically without the influence extending, even to the entire organism.

This physical effect may be carried to the extent of completely cutting off the blood supply, thereby causing immediate and actual destruction (electrolysis of a mole); or by interfering with it to such an extent that there is no channel left by which the inorganic constituents and proteid nutriment can be conveyed to the part with which to feed it, and death from starvation ensues (absorption of an organized inflammatory exudate or an intramural uterine fibroid); or, in lesser degree, only the normal ionization and osmotic action characteristic of living tissue and necessary nutrition and normal function. In this latter instance the same physical effects of the current results in a stimulation of normal chemicophysiological processes, *i.e.*, the movement from ion to ion throughout the interpolar circuit, the bodily transfer of complete neutral molecules and the normal non-electric osmosis. By this action nutritive changes are initiated and, by a sufficiently frequent repetition of the use of the current, are subsequently fully established. The one condition or the other will obtain according to the quantity of the current and the manner of its use, that is, whether a strong or a mild current is used and whether the application is characterized by current distribution or current density. The use of a strong current of short duration, characterized by a current density, has either an intense irritant or else a destructive action, whereas the same current if characterized by current distribution will produce an entirely different effect because by reason of the increased electrode contact (square inch area), the energy expended in each square inch of surface is diminished in proportion to that increase.

A mild current if long continued will cause a profound change in the amount of fluids and salts in a part, and in this physical fact is to be found the therapeutic indication in pathological states, whether characterized by a diminished blood supply or under nutritive activity, pelvic exudates or a benign degenerative process, or by an excess of fluids as in a subacute articular rheumatism

[1] The physical phenomena of electric osmose is always known in electrotechnics as cataphoresis and does not refer to the introduction of drugs or cataphoric medication.

for example. The nutrition and healthful function of the living organism as a whole, as well as a part, is absolutely dependent upon the maintenance of the normal proportion of the fluids and salts. It follows, therefore, that the removal of the fluids and salts from a part, a fibroid, for example, by the action of the current, even though the removal be but temporary, will tend to the death of the tissue thus acted upon. Morbid growths and all suborganized material are less well provided with blood vessels than normal tissue, and such an action will tend to interfere with the circulation, with the result of depriving the part of its proteid nutriment, or, in other words, starving the outgrowth or exudate.

Such then is the rationale of the action of the current in inflammatory exudates.

To no body of men is the subject of inflammations and their sequelæ of greater interest than to the general practitioner. The intimate pathology of inflammation and inflammatory exudate is the same, no matter what organ or tissue is implicated varying only with the anatomical site and structure and physiological function. The inflammatory process may occur during the progress of a typhoid fever, more rarely in these days of a puerperal fever; it may follow an operation for appendicitis or a uterine curettement, and in each and every such instance it is the venous distribution which suffers. The initial lesion may have been a para- or perimetritis which often, despite the best that classical medicine affords, stops short of full absorption of the products of inflammatory action. Masses of exudates remain in the pelvis, limiting mobility of the uterine organ, and drawing it to one side or the other. The broad ligaments, one or both, are thickened and contracted, and the ovaries are also involved in the exudative mass. Sometimes the process has been so extreme as to agglutinate all the tissues, completely roofing the pelvis in. The patient suffers from pain, weariness, dragging, backache, dysmenorrhea and disability, as well as from reflex nervous phenomena. Normal circulatory processes are impossible, and by reason of the pressure of exudative masses, tissues and organs are not properly fed. When the process goes on to the formation of connective tissue bands the case is still further complicated. In postoperative pelvic cases the presence of scar tissue not only limits function but contributes as well to untoward nerve and mental conditions. Or the inflammatory action may have been of a septic or rheumatic nature involving a joint. The acute lesion has been recovered from, but the articulating surfaces of the affected joint or joints are covered with the products of the inflammatory action. Their movement is limited and such movement as the roughened surfaces permit is the cause of pain. Additionally the case is complicated by the presence of the inflammatory exudate about sheaths of tendons. The arm or member is board-like in its feel. There is diminished mobility. If a forearm and hand, pronation and supination are practically nil, also flexion and extension. The skin is blue and cold and the patient is disabled.

An acute neuritis may have passed, but as a result there is left an inflammatory exudate about the sheath of the nerve, leading to pain, rigidity or disability. Through the pressure and interference with the circulation congestive and low grade inflammatory conditions are perpetuated and the patient becomes the victim of chronic aches and pains, variously diagnosed as neuralgia, lumbago, rheumatism, etc.

Mucous membranes are similarly affected by inflammatory action. An endometritis with thickening of the endometrium may take place, and in consequence of constant recurring congestions, pain and disturbance of function follows. A cystitis becomes chronic and as a result of the throwing out of inflammatory exudate the mucous membrane is thickened and corrugated. The vesical function is interfered with even to such complete incontinence as to lead to the suspicion that fistulæ are present. The urethral canal only may be involved. The nasal, pharyngeal and conjunctival mucous membranes likewise become affected as a result of recurring inflammatory conditions. The Eustachian tube suffers in consequence of the extension of catarrhal inflammations, and the membrani tympani become thickened and retracted. Turbinated bodies hypertrophy and tonsils become enlarged and hyperplastic. Corneal opacities follow upon the throwing out of the products of an inflammatory action in a keratitis, for example. These exudative inflammations in some instances recover very completely without special attention, but in a great many instances they go on to the formation of organized inflammatory products which interfere with function, cause pain and disability, and stand between the patient and that sense of well-being so necessary to a useful and happy existence. It is not enough for the man that he gets well of his typhoid fever if he is left with a leg which interferes with his usual avocation, for the man that he recovers from an operation for an appendicitis, or for a woman that she is successfully curetted for a fungoid endometritis, if in turn they are handicapped by swollen, clumsy or disabled members, as in phlebitis involving the leg or legs.

Nor, again, is it sufficient for a woman to recover from the acute condition of her parametritis if there follows constant suffering, pain, disability, impaired function, with but one week out of the four of comparative comfort, if any. Nor is it sufficient to have passed the agonies of an acute neuritis if a heritage of rigidity, stiffness with recurrence and exacerbations of pain due to pressure of organized inflammatory exudates follows. These handicaps are not accepted by the average man or woman with complacency and finality, nor should they be. Every means should be exhausted to restore, just as nearly as possible, every organ or part to its normal condition. If possible, inflammatory

processes should not be permitted to go to the extent of organized exudate when glands, neurons and muscle fiber have suffered beyond repair and absorption becomes a much more difficult thing. For many years, as a result of certain clinical work, the writer has believed that classical medicine could secure to itself better results in this class of cases, if it not only appreciated what can be done in the earlier stages of the pathological change, but knew in what form and how to expend electrical energy safely to that end. But while the writer's case book affords illustration of the action of the form of electrical energy indicated both in acute and subacute conditions, the purpose of this paper is more especially to emphasize the value of the continuous current in inflammatory exudates even when pretty well organized. In reviewing the hundreds of cases cared for, both in private and clinical practice, the following illustrative conditions are noted: Phlebitis, exudative inflammations about the articulations of joints and sheaths of tendons, both rheumatic and septic, pelvic exudates involving the uterine organ, its mucous lining and one or both ovaries, the urethra, the bladder, the conjunctiva, the cornea, the membrana tympani, the nasal mucous membrane, the Eustachian tube, the pharynx and tonsils, the intestinal tract, intestinal catarrh, mucomembranous enteritis, the liver, chronic hepatitis, ascites from cirrhosis, perineuritis of the brachial, lumbosacral distribution, etc., and spinal cord lesions, as in tabes and following spinal hemorrhage. It does not matter what tissue or organ is affected, so long as it is possible to apply electrode contacts so as to expend the chemicophysical energy of the continuous current directly upon or within the mass of organized exudate. The less fully organization has taken place the quicker and better the result. If it has gone on to the formation of connective tissue bands little can be done for them beyond the improvement of circulatory conditions, softening the morbid tissues, and putting them in a better condition for manipulation by the skilled masseur or for the action of an alternating current. But so long as masses of exudates (other than bands), encroaching upon cavities, infiltrating mucous membranes, matting together the various tissues, muscular and vascular of a leg, surrounding articular surfaces or binding down sheaths of tendons are concerned, their absorption with restoration of function, complete or approximative, can be obtained painlessly and promptly by the use of a continuous electromotive force when other measures are of no avail. In this connection it may be said that the great difference of opinion concerning the results obtained in urethral stricture, a subject which has been pretty well threshed out in times past, has undoubtedly been due to incorrect differential diagnosis. Just so sure as the narrowing of the canal is due to the presence of the products of exudative inflammation in the mucous membrane limiting its caliber just so sure can a result be obtained by the use of the continuous current tending to the increase of its caliber and restoration of function, but if the canal is additionally limited by the formation of connective tissue-bands divulsion or cutting must of necessity be practised as well.

ILLUSTRATIVE CASES.

Of a series of seven patients treated for phlebitis, five of whom came under the writer's care because of the benefit received by each preceding member of the series, one was due to varicosities of the veins, three followed typhoid fever, one an operation for appendicitis, one a uterine curettage and one vaccination. Both legs were affected in one instance, and one each in the remaining six, five the right and one the left leg. The duration of the disease was variously from one month to two years. Classical medicine had been exhausted in all the chronic cases and even in the recent case. Rest in bed in the horizontal position, lotions, bandages, massage, unskilled applications of a magneto induced electromotive force (Faradic) cautery, mechanical movements and exercise were among the means to the end. The treatment had been begun while the typhoid and surgical cases were still in bed. They were all, however, uniformly left with badly swollen legs, infiltrated tissues of characteristic brawny feel and great disability. The following case typifies the series with one exception, to which reference will be made later on.

Case I.—H. R. H., lawyer, aged thirty-eight years. Came under care in January, 1898. General health always good. Patient contracted typhoid fever in October, 1896, after a hard summer spent continuously in the city. The attack, a severe one, was complicated by shingles, and between the third and fourth weeks a phlebitis of the right leg developed. It followed the usual course, presenting classical symptoms. The leg was very much swollen and at first extremely painful. In addition to his forced recumbency, lead lotions and wrapping in cotton wool were used. Convalescence from fever was finally established and he was able to leave his house in January, 1897. At that time the leg was swollen, stiff, especially at the knee-joint, and uncomfortable but not acutely painful. He came under care January 15, 1898, just a little over a year after getting up from the fever. At no time in his life had there been any varicosities of the veins. During the year the entire leg was involved. From the ankle to the junction of the thigh with the body it was constantly swollen, most markedly in the evening, unwieldy and uncomfortable, and it was with the greatest difficulty he could walk or stand. A silk stocking extending from the ankle to above the knee was ordered when he first got up, and after being worn for a number of months was replaced by one from the ankle to the knee. At time of coming under care the leg was in practically the same condition as for the preceding year, *i.e.*, stiff, swollen, worse at night, larger than the other and with constant

sense of weight and discomfort. Walking and standing increased all the symptoms, especially the swelling, and the legs could be crossed only by raising the affected leg with the hands over the other. The silk stocking worn constantly from ankle to knee was removed with difficulty at night owing to the swelling.

Physical Examination.—Leg apparently much larger than the other; skin shining, purplish red in color; inactive in appearance; no varicosities. Temperature lower than in good leg; skin tense; no elasticity nor flexibility of tissues but a brawny feel with sense of infiltration and matting conveyed to the examiner's hand. No pitting on pressure. Measurement taken at five different points from the ankle to the upper part of the thighs showed a difference between it and the unaffected leg of from one-half to one and one-half inches, the greatest enlargement being at the middle of the thigh. The general health of the patient was good; general circulation fair, tendency to cold hands, skin of face and body ruddy in color, well-nourished, appetite good, no stomach indigestion, no constipation, no heart lesion, sleep good.

This case, as has been stated, typified the series save that in the case of double phlebitis, the original damage to the veins had been so great that the improvement secured at first was not permanent. The latter case in common with others of the series, however, made a good recovery characterized by diminished swelling and size of the extremities, more nearly normal elasticity of the veins, healing of an ulcerated area, less discomfort and ability to get about quickly and to move with normal accuracy. His occupation, that of civil engineer, necessitated incessant standing, walking and climbing over obstacles in order to look after his workmen. His size, weight and a constipation from which he suffered no doubt contributed to the relapse which followed. The ulcerated area broke down and there was recurrence of the other symptoms. Improvement was again promptly reestablished and the ulcerated area healed. On two occasions between two and three years after first coming under observation he presented himself with thrombi, once just below the knee (internal saphenous), and once above the ankle, about the junction of the middle and the lower thirds of the leg. There was stoppage of the circulation as evidenced by the heat, pain, redness, swelling and disability. Such was his confidence in the treatment which had been given him two years before that he came immediately when he was aware of his condition. Under treatment with the continuous current, polar indications being met, resolution was promptly established, relief following in both instances from the first treatment. All evidences of the thrombi disappeared within a few days, and at no time was he prohibited from following his usual business routine. Standing and walking were guarded against as much as possible.

The case following, a uterine curretage, came for treatment a few weeks after the operation, in the early stage of the pathological change, that is, before the products of inflammatory action were well organized. Her recovery took place therefore in a much shorter time than in the cases of long standing. In the first case detailed, the patient, who had been unable to stand, walk, or take physical exercise, after a week's daily treatment, played golf for a greater part of a day, walking ten miles during the progress of the game. On the day following he remarked that so far as feeling was concerned he could discern no difference between the two legs. The stiffness in the knee disappeared under the first treatment, this after a year's disability. Despite the subsequent relapse the case of double phlebitis improved in the same fashion and both patients discarded their silk elastic stockings in from ten days to two weeks.

Treatment was continued in the entire series of cases from a few weeks to three and one-half months and the improvement in every case was maintained save as instanced, being characterized by a nearly normal circulation, elasticity of the walls of the veins, disappearance of the inflammatory exudates infiltrating and binding down the tissues with diminution in size of the affected member and normal usage.

The continuous current was used in all of these cases; polar indications always being met; the greatest care being not to break the contact at any time during the treatment in order to avoid sudden contraction of the muscles. It was not only necessary to select a current capable of producing chemical changes, electrolytic and cataphoric, stimulating at the same time circulation and increasing the activity of the absorbents, in order to free the parts as far as possible from the products of inflammatory action, but at the same time a current that could be used so as not to cause any sudden muscular contractions, as such contractions might cause the vegetations or thrombi which are present in many of these cases to be released and set adrift into the general circulation.

Especially was this care exercised in the case complicated by the presence of thrombi. Rhythmic contractions of the blood-vessels are produced by the continuous current even when the electrode contact is unbroken but these do not possess an element of danger as do the sudden, sharp, muscular contraction of a broken electrode contact or of an alternating current. In every instance after improvement was established and the danger from muscular contraction reduced to a minimum, a sinusoidal current which produced long, undulating and far-reaching muscular contractions was used. At the end of three months these patients reported that they had 90 per cent. better use of their legs than when treatment was instituted, and bicycle riding was indulged in from 9 to 20 miles a day by some, while golf, tennis, swimming, walking and riding were practised by others.

Case II. Inflammatory Exudates Involving Joints.—C. J., aged thirty-four years; single; cook; exudates about articulations of elbow, wrist and hand, involvement of the sheaths of tendons with marked impairment of mobility. Six months prior to coming under care received a cut on little finger at second phalangeal articulation. Inflammation, septic, followed with extensive cellulitis of hand and arm which went on to suppuration. Pus evacuated through several incisions from carpus to elbow.

Little finger amputated. Sinuses closed in two months. Entire hand atrophied and stiff. Hand and forearm hard and boardlike, no play of tendons, elbow motion slightly limited, supination one-half normal, wrist, extension 80 degrees, flexion, 50 degrees; radial flexion absent, ulnar, 18 degrees. Fingers in extension at metacarpophalangeal articulations; wrist flexed at 10 to 20 degrees. Approximation of thumb to forefinger one and one-eighth inches, to middle finger one and three-quarters inches, to ring finger two and one-quarter inches. Hand useless, unable to do his work, cannot hold even a newspaper. Forty-four treatments were given extending over a period of five months and six days. Marked improvement followed the first treatment, characterized by increased mobility, a gain of one-half inch in approximation of thumb to other fingers, of 20 degrees in wrist flexion, improved circulation, skin warmer and softer and the entire hand and arm more supple. After four treatments extending over a period of two weeks patient could not only hold a newspaper but was able to lift a papier maché foot bathtub two-thirds full of water. At the end of three months patient flexed, extended, pronated and supinated injured forearm equally well with normal one, while wrist function was practically normal and he resumed his occupation. The carpophalangeal articulations were the last to yield. In all joint cases some of the smaller articulations are apt to be left with limited motion. This patient had been treated by means of massage and passive movements before coming under care.

Case III.—Mr. K., aged thirty-seven years; truckman; single. April 14, 1898. Exudates about articulations. Ankle-joint injury. At the age of five years fractured ankle, delayed union; several operations and portions of bone removed. Seton applied for two years. Fifteen years ago the ankle got weak, growing worse. Inability to stand on foot. Left leg 1½ inches shorter than right. Scars seen about joint. Pronation and supination absent. Extension and flexion limited to one-third of normal. No play of tendons visible at ankle. Patient received seven treatments extending over a period of nineteen days. After first treatment extension and flexion improved. Play of tendons visible at ankles on movement. At third visit more motion in ankle in every direction. At fifth visit flexion and extension almost normal. At discontinuance of treatment patient could stand on foot and had nearly normal motion.

Case IV.—Mrs. E., aged twenty-nine years, housewife. November 23, 1897. Exudates about right elbow, joints and sheaths of forearm. Four years ago right arm and hand became stiff from blood poisoning. Three years ago operation on elbow-joint for stiffness, arm in splints eight weeks. Pronation and supination very limited. Arm bent to an obtuse angle and shorter than other. Crepitus at elbow. Pain in muscles and around humerus and at wrist, more severe in bad weather, and intensified on lifting. Twelve treatments in 2½ months. After first treatment slight improvement in pronation and supination. After second treatment the pain in joint was very much less and troubled her only when lifting or after carrying a large package. The mobility and strength of joint continued to discontinuance of treatment. General health improved with freedom from pain. Patient reported a month later that improvement was maintained.

Ordinary traumatic and rheumatic cases yield much more promptly and completely than those in which sepsis has been a factor.

Case V. Pelvic Exudates.—M. R., widow, aged fifty-nine years. Domestic duties. From a constantly recurring low-grade inflammatory action exudative masses had been thrown out, complicating a retrodisplacement of the uterine organ and pressing upon a prolapsed and enlarged ovary. The general health was bad in the extreme. Anemic; worn and anxious facies, weight 152, temperature 98° F., pulse 66, weak. Heart normal. Uterus retroverted, held back by exudates; right ovary prolapsed, enlarged and sensitive; vaginal mucous membrane red and congested.

Twenty-eight continuous current applications were given resulting in nutritional gain, *i.e.*, increased weight, improved color, better circulation, ability to sleep, lessening of nerve irritability and depression, and improved digestion. Less pain and congestion; right ovary smaller, less sensitive, less markedly prolapsed; absorption of exudates. An intolerable existence made tolerable without restoring organs to correct anatomical position or to physiological condition.

Case VI.—Mrs. —, aged forty years. Had a severe inflammation involving all the pelvic tissues. She came under the writer's care in 1893 after several years of invalidism, during which time she was bedridden for at least three weeks out of four. She drifted from one gynecologist to another, and there was no lack of talent in the coterie of brilliant men she quickly enumerated.

Every physical examination, according to the history given, produced an exacerbation of her trouble. She had constant pain in the pelvis, leucorrhea, dragging and weariness of limbs, backache, disturbed digestive functions, dysmenorrhea, and every month or two an attack of inflammation which kept her in bed and tied to hot douches, applications, etc.

Forewarned was forearmed, and in examining

the patient the greatest care and gentleness was used. Although discomfort followed there was no inflammatory exacerbation. The pelvis was found literally roofed in, the uterine organ immobile and the ovaries bound down in the exudative mass. So great was the encroachment upon the cavity that the vaginal electrode could only be introduced from one-third to one-half its usual length. The greatest care was exercised to prevent either mechanical pressure or too great current density at the vaginal vault. The task demanded all the skill and experience possessed in this class of work as well as the most exact technic and knowledge of the properties, physical and physiological action of the energy used, for if a fraction of unit more of electrical energy should have been expended than was indicated, or a unit more of manual energy used in the necessary manipulation than the sensitive tissues could bear, the trouble would undoubtedly have been exaggerated.

The two to three months the patient was under care were months of constant anxiety; but by gentle, patient and persistent effort the desired result was obtained and absorption established with modification of all her symptoms and relief from some. The vaginal space was much less encroached upon and the pelvic organs became mobile. Treatment was given in the early fall of 1893, and the summer following the patient made the trip to the Yellowstone region as well as touring through the Pacific Coast without any return of her trouble. She was heard from only two years ago, and has remained well.

Case VII.—Mrs. C., aged thirty-three years. September 7, 1894. Intramural fibroid developed in right and anterior walls of uterus; ovaritis, right; exudates, right side; uterus immobile, canal tortuous; pelvic pain, soreness, sensitiveness to pressure, especially right iliac fossa; cruralgia (pressure); constipation; profuse and premature menstruation. Twenty continuous-current treatments in all were given extending over a period of four and one-half months. Result: complete relief of all symptoms, disappearance of exudates, return of uterine mobility, regular bowels, regular and normal menstruation, relief of crural pain and establishment of general health. Fibroid mass firmer, harder and better defined. Slight diminution in size, due in part to the better definition of the mass and complete cessation of symptomatic evidences of disease. Treatment was suspended January 24, 1895, and almost immediately the patient, who had been sterile for seven years, became pregnant, passed through a normal pregnancy, and in the spring of 1896 gave birth to a well-developed child. There was no trouble at confinement and the patient has remained absolutely well all these years. The physician referring the case informed the writer a few days prior to the reading of this paper that both mother and child have been in the best of health ever since its birth, now fully ten years.

In a case referred to the writer by a general practitioner of this city, with a diagnosis of cirrhotic liver and ascites, the amount of fluid estimated at one-half gallon, ten treatments were given extending over a period of five weeks, resulting in complete absorption, diminished abdominal measurement, increased vigor and improved muscular tone. Although the writer questioned the diagnosis of cirrhosis there was no question as to the existence of some obstruction to the circulation, as the ascites was readily demonstrable—there was no lesion of the heart nor the kidneys.

A patient, aged thirteen years, with trachoma and a corneal opacity following a keratitis, was cured of his trachoma and almost wholly relieved of the exudates causing his corneal opacity, by the use of the continuous current. For the trachoma the action of the anode upon an oxidizable metal was utilized. When he came under care he was an object of charity because of his disability. He is now, some eight years later, employed as a bank clerk at a salary of $1,000, supporting not only himself but his mother and sister. These statements are made in order to emphasize, from the point of sentiment as well as dollars and cents, the value of the relief to the individual and his friends from conditions which are not relieved by the usual measures. The ascitic case had not yielded to the use of medication although there had been some improvement. The chemicophysical action of the current stepped in to alter and stimulate the circulatory conditions, thereby establishing absorption of the transudate and increasing the patient's general muscle tone.

RHEUMATISM AND THE EYE MUSCLES.[1]

BY FRANCIS VALK, M.D.,
OF NEW YORK.

It would be an act of supererogation for me to say anything about rheumatism before this society. You, as general practitioners, must be much more familiar with this pathological condition as it exists in all other parts of the body than myself, except, if I may so state it, when we have an involvement of the eye, or more correctly stated, the muscular apparatus of the eye, due to a rheumatic diathesis.

This paper does not treat of the many special diseases of the eye that may involve the eyeballs essentially. Those conditions may be fully described in the numerous text-books of the present day, but I hope to demonstrate the influence this rheumatic condition may have on the muscular apparatus of the orbit, or in other words, on the rotation of the eyeballs. The etiology of rheumatism seems to be an undecided question. If we follow Haig in his investigations we may feel sure that the question is settled and that the "uric acid in the blood" will account for all the symptoms that may arise in the human sys-

[1] Read before the New York State Medical Society, at Albany, N. Y., February 1, 1905.

tem, even that it may cause the "prominent eye," which in the opinion of most oculists is due to myopia or to some pathological condition behind the eye. My honored teacher, Professor William H. Thomson, of New York, makes a very decided distinction between rheumatism and gout, and says, "True rheumatism, on the other hand, is caused by a specific bacterial infection" (*Medical Brief*, p. 946), and furthermore, Osler says, "that rheumatism and gout are supposed to be due to the formation of some toxic material within the body, or to the inadequate elimination of some such material." I would also mention a discussion on ocular conditions in which Dr. Koser, Williamsport, Pa. (*New York Post-Graduate*, June 1896), stated that "one of his patients had been repeatedly tenotomized by others and that before he would personally operate on this man he studied his habits of life most closely. Then he found that the man was the victim of uric acid poisoning. More than this, he had noticed that this was the the cause of these violent headaches and the varying results in testing for ocular insufficiencies. He felt positive that these cases were almost invariably examples of uric acid intoxication." Whatever then may be the etiology of this affection of the body, whether it may be "uricacidemia" or a "specific bacterial infection," we do know that clinically we have certain symptoms that are called rheumatism and others, which are referred to, a different pathological condition of the blood, called gout. But I am not aware of any statements which refer to an affection of the eye muscles as due to this condition except under the head of a paralysis or a paresis. Fuchs (p. 602) says, "Rheumatic paralyses are frequent. By this term we understand those paralyses in which, judging from the accompanying symptoms, the lesion is situated peripherally and for which no cause can be found except possibly the action of cold." Landolt, Linnell, Noyes and others make the same statements, but in all these cases we have diplopia with the temporary paresis, while Knies (p. 373) says, "the large majority of so-called rheumatic muscular paralyses do not belong to this category." All of these writers refer to a paresis of a muscular structure of the eye, which may be due to rheumatism, simply because by a process of elimination we can find no other cause for the symptoms presented and which do not refer to the subject matter of this paper. They present certain symptoms not heretofore mentioned.

I do not intend to consider all the various diseases of the eye that are affected by or are associated with, rheumatism, as all the tissues of this important organ are liable to suffer from the various inflammatory diseases that may attack other similar tissues. In the course of an inflammatory condition of rheumatism, we may have an involvement of the cornea, sclera, choroid, retina, and nerve, and our text-books treat of all these conditions. Yet all this only refers to a distinct pathological condition of the eye and its adnexa that may be seen and appreciated by the usual methods of examination. But it is not with any of these conditions that we are concerned with at present. It is in the question whether we may have restricted, slow and painful movements of the eye that may be due to a rheumatic condition of the blood? If so, then the symptom of this condition may be found in the following histories: More or less inability to use the eyes for close work. The eyes will tire and ache with pain back of them, and a sense of relief when the eyeballs are pressed backward in the orbits. Headache is not a constant symptom, though Haig states that headache with eye symptoms, if from uric acid poisoning, seldom lasts more than one hour. I found this symptom in some of my cases. Now as to the diagnosis of this peculiar condition of the eyes, this can only be shown and demonstrated by the examination of the field of fusion and the field of version. Before we proceed, then, we must consider the movements of the eyes according to the laws of nature in the different planes of motion. First, by the action of the lower brain or the automatic part, which controls the field of fusion, and secondly, by the higher centers, or that of control, which limits the field of version. Here, then, we have two very important functions of the human eye: Fusion or the guiding sensation, that receives its force to act, by the stimulation of the retina, so that the images shall be on corresponding parts. When this is measured, it seems to form a field, mapped out on the retina, 30 degrees outward, 8 degrees inward, 2 degrees upward, and 3 degrees downward. This we may consider as the normal field of fusion, our standard test. Now, in the region of control, we have the field of version, also a distinct field which is limited by the most complete rotation that the eye can perform under the stimulation of the will to all parts of the field of space. This field also seems to have certain limitations, as the eye turns about the center of rotation, and we find the limits to be in health about 55 degrees inward, 50 degrees outward, 45 degrees upward, and 60 degrees downward. This is the normal or natural rotation of the eye in these two fields, and if we take them as our standard tests, we may well appreciate any abnormal conditions in the movements of the eyes as may be shown clinically. To appreciate the extent of these fields we must bring to our aid certain tests by which these measurements can be made. The field of fusion is found by the prism test, using a series of prisms and placing the apex of the prism over the muscle attachment to the sclera. As an illustration, if we wish to test the rotational power of the internus in the field of fusion, we place the apex of the prism inward toward the nose. Then find the strongest prism with which the diplopia produced can be overcome and single vision again established. Proceeding in like manner with all the four recti muscles, we com-

pare our results with the standard test mentioned and thereby note any deficiency in power, any excess or any failure to cause the images to fall on corresponding parts of the retina. In making this test our image is that of a candle placed at twenty feet from the eye to be tested. We then proceed to test the field of version or the turning of the eye under the stimulation of the will. We may test this field by directing the patient to follow the motions of the finger or a pencil, held about one foot in front of the eye to be examined. The pencil or finger is now moved about to different parts of the field of space, as to the right, left, up and down or in any direction. As this test object is moved about the field, we note the movements of the examined eye to see if it lags behind its fellow or wavers at the extreme limits of the field to which it can be carried and yet clearly seen. This test, while useful and of great service in cases of paralysis, yet to my mind is somewhat crude, hence, I would urge the examination of this field always with the tropometer. This instrument keeps the head fixed, and as the cornea is watched through the small telescope, we can see and record the extreme rotation of the visual lines from the movements of the edge of the cornea on the index in the eyepiece. This test is very accurate and delicate. After it is made and the result recorded we must compare this with the normal field of version as I have suggested. Now in the condition to which I refer you, this rheumatic diathesis, we may find either one or both of these fields restricted, not in any one direction, as is shown in the cases of heterophoria, but in all directions of the rotation of the two eyes. I will burden you with the histories of only two cases.

Case I.—A. H., aged forty-five years. Refraction, hyperopic astigmatism, against the rule. Field of fusion, adduction, 15 degrees, abduction, 5 degrees. Field of version 50 degrees inward, 45 degrees outward. Accommodation normal. Has homonymous diplopia on testing the fusion power of the externi and heteronymous or crossed diplopia on testing the fusion power of the interni, showing a want of quick action and adjustment of the central fusion power, both outward and inward. We also note that the fields of fusion and that of version are somewhat below the normal extent. He has a history of uric acid with headaches and inability to use the eyes with comfort. Treatment, referred to his physician.

Case II.—Mrs. J. F., aged forty-three years. Twitching of the left eye; eyes jump and feel "as if dragged," insomnia and pain in the back of the neck. No headache, but strain after reading. Refraction, hyperopic astigmatism. Vision normal, accepts no glass. Field of fusion only 5 degrees inward and 2 degrees outward. History of rheumatism; treatment of same.

The histories of these two cases well present the symptoms that may be noted, and furthermore, we may find a certain diplopia when a red glass is placed before one eye, as then in certain parts of the field of space a red and white light will be seen when looking at a candle placed at 20 feet. This may be noticed in any part of the field, as to the right or left, up or down. This test also enables us to make the differential diagnosis from that of a paralysis of one or more of the ocular muscles.

In conclusion, let me state that while these cases may be very unusual, yet they may present certain interesting symptoms that may be present in any case of rheumatism or that may occur in the course of this condition, simulating ocular insufficiency. If so, we may account for them as due to the uric acid diathesis and the treatment is suggested. This, it goes without saying, must be directed to the general condition, and is not within the domain of ophthalmology, but lies wholly within that of the general practitioner.

164 East Sixty-first Street.

MEDICAL PROGRESS.

SURGERY.

Exposure of Spinal Cord and Canal.—The increasing frequency of operations upon the spine resulting largely from increased ability to localize chronic and subacute troubles, has brought into greater prominence the various technics for the exposure of this important lesion. Warren Stone Bickham (*Annals of Surgery*, March, 1905 discusses the relative values of osteoplastic resection and of laminectomy, the features common to both operations and the technic of each. In an osteoplastic resection, a composite flap consisting of skin, soft and hard part, is partially excised en masse and temporarily turned backward and upward. This flap is finally returned to its normal place at the conclusion of the operation with practically all its structures in normal relation. In the operation of laminectomy, the spinus processes and laminæ with collecting ligaments of two or more vertebræ are completely freed from surrounding structures, excised and permanently discarded. In doing laminectomy, the operation should always be done, so far as possible, subperiostially, but it is well known that many surgeons never attempt to do this. In any event, the changes are that the periostium will be sacrificed, because the bones undergoing removal are so small, irregular and deeply placed. Furthermore in contrasting the two it should be noticed that the tendency in laminectomy is to create a narrow opening, whereas in osteoplastic resection, the wider and freer the incision the easier it is to handle. The method of execution of the two operations presents about equal difficulties in the hands of an experienced surgeon. As to permanent disability arising from weakness of the spine, it cannot be doubted that after laminectomy there is an impaired spine, while after osteoplastic resection the spine is practically as good as before operation. This is true whether or not the bone be replaced by fibrous or by osseous tissue. It is well known that patients have not infrequently lost the power of sitting up after laminectomy. This has led to the suggestion by many writers that a brace should be worn for many months after laminectomy. The writer therefore advises unquestionably in favor of osteoplastic resection. In spite, he says, of the favorable aspects of this technic, there is no doubt that to-day many more laminectomies are done

than resections. The manner of dividing the laminæ in either operation is of paramount importance. The important principle is that the instrument should have its edge placed upon the laminæ at or a little to the outer side of their center and be made to cut its way through the laminæ strictly at right angles. The author advises the use of Doyen's saw, as the best instrument for making the bone sections. This instrument is practically a Heys saw with an adjustable guard.

Anastomosis Between Stomach and Esophagus.—No subject in the wide domain of surgery is attracting more attention than the matter of intrathroacic operation. Muro Murphy, of Boston, has demonstrated with his interesting and remarkably simple positive pressure box that almost unheard of operative work can be done within the thorax under positive pressure while the well-known work in the negative atmosphere, which took its origin in Germany, is affording interesting results. Sauerbruch (*Zentralbl. f. Chir.*, No. 4, 1905) states that within the last few months he has obtained such results with his negative pressure apparatus as to justify his statement that the problem of intrathoracic operations upon the esophagus, particularly resection, may be considered to have been placed upon sound surgical basis. He opens the chest cavity through an intercostal incision and, quoting Mikulicz, he states that for success in this work three factors are essential, the first and most important of which is thorough asepsis. The technic of the anastomosis between the stomach and the esophagus is as follows The pressure in the chamber is from 10 to 12 h.g., skin, facia and muscles are cut through to the pleura. This is lifted into the wound with forceps and opened with the scissors. A sound or finger is passed through the pleural cut and the ribs are separated. The lungs are then withdrawn with tampons and the aorta and the esophagus with the two vagi become visible. The esophagus is then drawn into the wound. An opening is made through the pleura and peritoneum and the stomach lifted up through it. During this manipulation the vagi should be particularly protected. In the animal experiments an assistant passes an esophageal sound from outside of the chamber and the female portion of a Murphy button is pushed down the esophagus to the cardiac end of the stomach. The operator within seeks this portion of the button with the hand. The sound is now withdrawn, and the button made fast at the chosen position. Similarly the male portion of the button is introduced with the sound into the esophagus and placed in position. Purse-string sutures are of course placed about the button as usual. Neither the pleura nor the vagi are detached from the tube. The author considers a Lembert stitching of the button as unnecessary. This operation has been done recently on 13 dogs, three of which have died. None of these deaths were due to failure of the union or to infection, but occurred suddenly at a considerable time from the date of operation. This anastomosis is of service in inoperable stricture of the esophagus, in diverticulæ of the lower portion or indeed in any position or for any purpose where until the use of the pneumatic cabinet has brought it in vogue, operations of any kind have hitherto been out of the question. In a similar way, but by a slightly modified technic, the operator has succeeded in resetting large portions of the esophagus.

Extirpation of the Gasserian Ganglia.—Harvey Cushing (*Journal A. M. A.*, March 11, 18, 25 and April 1 and 8) discusses various operative methods for dealing with the ganglion in cases of major trigeminal neuralgia. The importance of total removal of the ganglion he considers it evident, and were the anatomical difficulties less, it would be the only method free from criticism. This method alone, according to our present knowledge, insures total and permanent freedom from pain. He gives details in full of his method, which is different from that of Lexer, subsequently published and similarly successful, in the management of the meningeal artery, in that Cushing, so far as possible, carefully avoids injury to this artery, and generally with success. He also favors removal of the zygoma for cosmetic purposes, the slight flattening of the face thus produced being less disfiguring than the prominence of the bone with the muscular atrophy that follows the operation. He has also been able, in many of his cases, to reach the ganglion without much loss of blood, and claims that the small opening made by his method affords advantages in this regard during the removal of the ganglion itself and lessens the amount of packing required. He has had little success with the use of adrenalin or other methods than packing in checking the hemorrhage. Blood-pressure observations taken before and during the use of anesthetics are valuable in this connection as showing the patient's condition, and Cushing thinks that possibly his one fatal case might have been saved had more attention been given to the warnings furnished by this procedure. The clinical histories of his twenty cases thus operated on are given in detail and the results summarized. He remarks that he has not in all cases followed Krause's dictum that the ganglion operation should be performed only in those cases where previous neurectomies have been given a trial. In well-developed major neuralgia he thinks temporizing inadvisable, even for the temporary relief it may afford. The most important of the post-operative complications are those of the eye, and it is well to have an understanding with regard to this before operation. The commonest sequel is injury to the abducens. For safeguarding the eye, Cushing uses rubber protective, and after the operation he advises the use of a large watch glass with the edges covered with adhesive plaster so as to exclude the air and continued as long as conjunctival irritation threatens. His paper concludes with a number of physiologic considerations on the functions of the nerves and some remarks as regards the pathology. The morbid lesions underlying true trigeminal neuralgia are not yet revealed. The paper is fully illustrated.

Pott's Disease in Children.—From an extensive study of the disease as well as considerable experience in dealing with same, Gorochoff (*Prakt. Vrach*, January 29, February 5 and 12, 1905) draws the following conclusions: (1) Tuberculous spondylitis is preeminently a disease of the young child. (2) The greatest number of cases is found between the ages of two and eight years. (3) In his hospital experience the author met a greater number of girls than of boys, the number of the former being almost double that of the latter. (4) The duration of the disease before admission to the hospital was between a few weeks and one year. (5) In the presence of undoubted predisposition whether because of heredity or on account of surrounding conditions of life measles and at times trauma may serve as the starting point of the disease. The complication of spondylitis by measles shows itself very rapidly in deterioration of the patient's condition. (6) The lumps were mostly found in the thoracic portion of the spine; the lower thoracic vertebræ were usually the most affected, and the curvature was generally limited either to these vertebræ or to the upper lumbar. (7) With the evacuation of the abscesses followed by filling up of the cavities with a ten per cent. solution of iodoform emulsion, or after a curettage done with the same aim in view followed by a hermetic closure of the opened abscess, satisfactory improvement would be observed in those lo-

calities where the skin has not grown too thin. (8) Cases of active surgical interference and further treatment with drainage also showed a considerable degree of improvement, though the most frequent postoperative complication was usually a febrile condition. (9) Correct methodical extension and counterextension in bed often, in combination with suspension with the Sayre apparatus, is to be considered as the best means in the majority of cases, of checking the development of the tuberculous process and of creating favorable conditions for the further treatment with corsets. (10) Besides the specific treatment it is absolutely necessary that resort be had to favorable climatic surroundings, as in special sanatoria at seashore, or on the mountains, but never at a hospital. (11) Out of six who died four were found to have suffered from pulmonary tuberculosis, and two had in addition fatty degeneration of the heart.

PHYSIOLOGY.

The Mechanism of Gastric Digestion.—A great deal of attention has been paid to the chemistry of digestion in the stomach at the expense of the study of the mechanical features of this process, according to P. Grützner (*Pflüger's Archiv*, February 22, 1905). Roux, Balthazard and Cannon were the first to study the movements of the gastric contents by means of the Roentgen rays, but the author devised a new method entirely. It consists of removing the stomach from an animal killed at a definite stage in the process of digestion, while the gastric contents are semi-fluid, and then plunging the stomach whose cut ends have been tied into a freezing mixture. The results of this method were of considerable interest and importance. First of all, the fact was revealed that the contents of the stomach distributes itself in a regular fashion, in such wise that the later portions of the meal have to pass through the middle of that portion which first entered the stomach and remained in contact with the walls of this organ, the later portions of the meal being thus prevented from touching the mucous membrane. The fundus is the region where the food is principally stored, remaining here in some cases for hours, without being mixed with a trace of gastric juice. During this time the amylolytic action of the saliva is completed. At the same time the food in the prepyloric and pyloric portions of the stomach, together with some pushed over from the fundus, is mixed with a richly acid and peptic juice and digested. The composition of the gastric contents differs in different parts of the stomach. This is a fact which should appeal particularly to those clinicians who are concerned with the study of the stomach contents. Under normal conditions the stomach empties itself completely after a certain time. Another fact to be noted is that with the lapse of time the contents of the stomach gets more and more acid, or more properly speaking, the reaction is more marked, although, in human beings, the amount of acid is diminished. This is attributed to the fact that the mucus secreted by the glands of the pylorus is markedly alkaline. These researches have important bearings on therapeutics. Thus the administration of pepsin and hydrochloric acid may be of no avail, since both of those do not reach the proper region of the stomach, belonging to the greater curvature rather than the lesser, in the latter case leaving the stomach too early. During health moderate drinking at meal time in no way disturbs the activity of the stomach.

Potassium in Cells.—The rôle that potassium plays in the physiology of the bodily cells is unknown, for there is hardly any knowledge as to whether potassium is really present in the cells, whether the potassium ash obtained from tissues might not come from the serum bathing them, nor is there any knowledge as to the distributing of potassium. Any researches that will illuminate this subject will be of incalculable value from the standpoint of therapeutics, for the rational employment of potassium or its compounds will only then be possible. A. B. MacCallum (*Jour. of Physiol.*, February 28, 1905) has made a valuable contribution to this subject. By the use of hexanitrite of cobalt and sodium in solution and in the presence of acetate of sodium, he has been able to precipitate the minute amount of potassium contained in tissues placed in this solution. Upon washing the preparation with ammonium sulphide solution, the precipitate is colored black, so that its presence and distribution may be readily studied under the microscope. Potassium occurs in both the cytoplasm and extracellular structures. In the latter it is present as a product of impregnation and infiltration, and as a consequence there are few structures that are free from it. The cell nucleus does not normally contain the slightest trace of potassium nor does the head of the spermatozoon give the slightest evidence of its presence there. Nerve cells are wholly free from it, and this freedom extends to the dendrites and axons. External to the axons in medullated nerves potassium compounds obtain chiefly at the nodes of Ranvier and in the neurokeratin framework of the sheath, but at other points also often in minute masses of bizarre form. The potassium obtaining in cytoplasm occurs in two conditions, that of physiological precipitation, and that of physiological or biochemical condensation. The precipitation is not of a physical character, but may perhaps be of the nature of fixation, in an inert form, of the potassium in passive colloidal material in the cytoplasm. This precipitation is the process, apparently, by which living active cells dispose of the excess of the potassium salts which may invade them, as in the case of vegetable forms, in very great excess. In the condition of physiological or biochemical condensation potassium salts in solution are concentrated in some particular part or parts of the cytoplasm and excluded from the remainder. This condition of condensation, is, undoubtedly, in some cases at least, a factor in the metabolic processes peculiar to the cells, or species of cells, illustrating the condition. That salts can be in solution and at the same time confined strictly to parts of the cell is shown in spirogyra, in which, in the healthy normal form, the potassium is strictly localized to the immediate neighborhood of the chromatophor, which, in the intact cell, is supposed to function, in some degree, in the synthesis of the carbohydrates. In smooth muscle fiber the potassium found is scant and is diffused throughout the cytoplasm, but in striated fiber there is a condensation of the potassium in the dim bands, the rest of the fiber being from the element. When the fiber is in the contracted condition the potassium is most abundant in the middle third of the band, at least such is the case in the wing muscles of the scavenger beetle. It is the doubly-refractive substance of the dim bands that, apparently, constitutes the contractible material, that is, the inogen of Hermann, and its association with potassium suggests some relation of the latter, not with contraction, for smooth muscle shows that property, nor with tetanus, for in cardiac muscle the potassium is disposed as in ordinary striated fiber, but with rapidity of contraction, which distinguishes striated fiber from smooth. There is in the secreting cells of the pancreas of the guinea-pig and rabbit a remarkable concentration of potassium compounds in that portion of the granular zone which is immediately adjacent to the lumen, while the remainder of the cytoplasm is free from them. There are organisms which

manifest a distinct capacity to absorb potassium and among them is one, parasitic on *Spirogyra*, whose mycelial threads exhibit kaliophilism in a special degree.

Postnatal Changes in Thymus.—It has been shown that castration in animals causes a persistent growth and a retarded atrophy of the thymus gland. A histological study of these changes has been made by A. Goodall (*Jour. of Physiol.*, February 28, 1905), with the following results: In guinea-pigs the thymus at birth consists of lobules of adenoid tissue containing islands of squamous epithelium, many of which are invaded by polymorphonuclear leucocytes. This invasion results in cutting of masses of epithelium from their source of nutrition, hence they rapidly degenerate and form a concentric Hassall's corpuscle. If only one mass is thus cut off a simple Hassall's corpuscle will result; if several such masses, a compound corpuscle, which may for long remain surrounded by one or more of the peripheral layers of epithelium which have not been cut off from the lymphoid reticulum and hence do not degenerate. As has been shown by others, with advances in age of the animal the Hassall's corpuscles become small and largely disappear, while the lymphoid tissue diminishes and becomes to a great extent replaced by fat. The postnatal thymus is a source of lymphocytes, but does not produce pseudo-eosinophile or eosinophile leucocytes. The retarded atrophy resulting from castration is due to a delay of the fatty invasion and a delay in the process of the disintegration of the epithelium composing the Hassall's corpuscles.

OBSTETRICS AND GYNECOLOGY.

Reactions of Fetal Organs.—The many changes which take place in the maternal organs have been ascribed to the effects of chemical substances, which are generated during pregnancy and circulate in the blood of the mother. These affect primarily the genital organs and the breasts. J. Halban (*Zeitschr. f. Geb. u. Gyn.*, Vol. 53, No. 2) suggests that these same substances might gain access to the fetal circulation through the placenta and exert a similar effect on these organs in the fetus. He therefore examined the genitals and the breasts in a number of fetuses either prematurely or stillborn, and also several infants ranging in age from a few days to three months. The conclusions of his rather exhaustive paper are as follows: He thinks that there is reason for believing that the changes in the maternal organism are due to the action of chemical substances and his experiments warrant him in stating that a similar change occurs in the fetus. In the female fetus there is developed a hypertrophy and hyperemia of the uterus like that in the mother, and the genital bleeding seen very often in female infants, is simply an extreme degree of this reaction. The mammary glands of the fetus hypertrophy during pregnancy very much like those of the mother and also show characteristic histological changes. In male infants this hypertrophy is also seen in the prostate and the breasts. The toxins of pregnancy manifest there effects in the fetus in a manner similar to that seen in the mother and we have leucocytosis, damage to the kidneys and edema. Halban thinks that the active substances which produce these phenomena date from the placenta, and that they are in the form of an internal secretion derived from the chorion. After delivery has taken place and the placenta is removed, these substances are no longer thrown out into the circulation, and there results in both mother and child a puerperal involution of all the organs which have become hypertrophied during pregnancy, and also a regeneration of those which were damaged by the generated toxins. He believes, moreover, that eclampsia is merely the effect of a more pronounced toxic action of those poisons which are normally developed during pregnancy. The eclamptic poisons likewise are derived from the placenta, they circulate in both the maternal and fetal organisms and call forth the same changes in each. If the damage has not been too great, regeneration of the affected organs may take place after the placenta has been removed.

Sequelæ and Treatment of Abortion.—The medical diagnostician frequently fails to estimate the frequency and variability of infection in these cases in their true etiological relations to lesions of organs other than the genitalia, as well as the genitalia themselves. A. B. Keyes (*Am. Jour. Obstet.*, March, 1905) has given a review of the multiple sequelæ of abortions which accentuates the gravity of neglecting to give such cases most careful treatment and emphasizes the importance of early diagnosis of sequelæ which are so frequently attributed to other causes. (1) *Drug Injections.* Nitric acid forced into the uterus have caused death and insanity. Acetate of lead injection has caused death. (2) *Perforation of the uterus* has caused death from sepsis and injury to the intestines. (3) *Air embolism* has caused death in instances in which air had been forced into a uterus with a partially detached placenta by the introduction of the lip of a Davidson syringe. (4) *Endometritis* of the post-abortional type is frequently encountered. (5) *Uterine abscess* has been reported following criminal abortion. (6) *Endosalpingitis* is a common sequelæ. (7) *Ovarian abscess* and (8) *Tubo-ovarian abscess* occasionally occur. (9) *Metroperitonitis* has been reported as a cause of death following abortion. (10) *Thrombophlebitis uteri* with *Phlegmasia alba dolens* and *Pulmonary embolism* resulting in pulmonary abscess has occurred in cases which have been treated for tuberculosis, pleurisy and intercostal rheumatism. (11) *Hematocele.* (12) *Sapremia.* (13) *Septicemia.* (14) *Pyemia.* (15) *Tetanus.* (16) *Hemiplegia* and (17) *Hemianopsia homonymia* have also been reported as abortion sequelæ. The treatment of threatened abortion consists in the enforcement of quiet and absolute rest in bed. Vaginal examination should be limited and strict asepsis observed. Opium should be given to control the pains and an antiseptic pad placed over the vulva. Ice over the abdomen is contra-indicated as it stimulates uterine contraction. The patient should stay in bed ten to fourteen days after the hemorrhage ceases and should remain in bed two or three days at the time each menstrual period is due until the middle of pregnancy is past. The treatment of inevitable abortion should be expectant and operative. The former employed when the demand for evacuation is not urgent as in the absence of fever or profuse hemorrhage or odorous discharge. The intra-uterine tampon is more certain and scientific than the vaginal tampon and will prevent the blood from dilating the uterus. When operative interference is indicated dilatation of the cervix should be sufficient to admit one finger in a two months' pregnancy and two fingers in a three months' pregnancy. The conception product should be shelled out entirely, if possible. Curetting should be done with great care and a large curette used, since a small instrument may be pushed through the uterus wall with greatest ease.

Treatment of Eclampsia.—The principles of treatment of eclampsia consist in controlling the convulsions and eliminating the toxins. Chloroform is the most reliable agent for controlling the convulsions, but its injurious effect on the cardiac and vascular systems precludes its use for any extended period. Morphine restricts the eliminative function and prolongs the post-

eclamptic stupor. Chloral controls the convulsions, is less toxic than morphine, has no injurious effect on secretion and can be continued for long periods. C. B. Reed (*Am. Jour. Obstet.*, March, 1905) considers the most satisfactory method to consist in the employment of chloroform until chloralization is complete. Veratrum would seem to meet the indications but has not been sufficiently tried. To secure elimination of the toxins, catharsis by means of calomel, croton oil or high colon flushings is of prime importance. Fluids by mouth and rectum and cupping over the kidneys will stimulate diuresis. Diaphoresis is best obtained by the hot-air bath or hot pack. The uterus should be emptied as speedily as possible by forceps or version, if the cervix is dilated. A closed cervix should be dilated by the fingers or rubber bags. If the cervix is rigid and cartilaginous Cæsarean section, vaginal or abdominal, should be resorted to.

THERAPEUTICS.

The Therapeutic Value of Relaxing Climates.—A change of air is a very common recommendation in many diseases and very few restrictions are appended to this advice. The usual climatic prescription is "some place in a good bracing climate." The indifference which the subject meets with among medical men and the purposeless manner in which it is applied is ably discussed in a paper by Leonard Williams in a recent number of the *Edinburgh Medical Journal* (March, 1905). The change from the polluted air of the large towns and cities to the purer air of the country, is always good, but more attention should be paid to the other climatic factors, moisture, sunshine and exposure, which present wide divergences in many places, though all of these can lay claim to an equal atmospheric purity. In most instances, if anything beyond atmospheric purity is considered at all, it is that combination of conditons to which the adjective "bracing" is applied. The writer succeeds in demonstrating that this may be one of the worst of all climatic prescriptions, well enough for people in moderately good health, but apt to act as an irritant in abnormal states. A bracing climate is characterized by extremes, and its physiological effect is one of stimulation. Sufferers from chronic pulmonary, renal, cardiac or nervous disease, demand a sedative rather than a stimulating régime, and for this purpose, what the author of the paper calls a relaxing climate is more suitable. The meteorological factors which combine to produce a typical example of such a climate are, moderate, if any elevation, moderate exposure to the winds, full exposure to the sun, and a high humidity with its consequent equability of temperature. It is claimed that such a climate, despite its disagreeable effects on the healthy, is possessed of a much wider therapeutic range than that whose subjective effects are agreeable. These indications are ably considered in the author's article and it would pay most every one to read them. Madeira and the Canary Isles, and a number of places in England and France are suggested as localities where the proper conditions are available, but undoubtedly there are also numerous resorts on our own continent which would fulfil the same indications. The writer fitly concludes that the relaxing climates have been unduly neglected, their unattractive exteriors have obscured their inner worth and the time has seemed ripe for a plea in favor of a truer and fuller estimate of their therapeutic powers.

Ichthyol in Mycosis Fungoides.—Several remarkable cures in mycosis fungoides are reported by Menahem Hodara (*Monatsch. f. prakt. Dermat.*, 1904, No. 38): Ichthyol, 7½ to 15 mm., given daily for three or four months, caused almost complete disappearance of the unsightly tumors. In addition, the patient received ichthyol locally and sodium cacodylate internally. It is true that in many instances this skin disease tends to disappear spontaneously, yet in one of the cases reported the condition had continued unabated for five years, so that the cure must be ascribed to the ichthyol.

PRESCRIPTION HINTS.

Treatment of Ozena.—The prognosis of ozena is not so grave as heretofore, and the treatment instituted at the outset has a chance of cutting short the affection before atrophy of the mucous membrane sets in, and at the same time the fetid odor is removed. To succeed, two operations are necessary: remove the nasal crusts by plugs of cotton wool and wash the nasal fossæ.

M. Lyon recommends for this latter injections of a saline solution (one tablespoonful of bicarbonate of soda to the quart of tepid water or salt water [two teaspoonfuls of salt to a quart]). After several days of these injections antiseptic irrigation will be made.

℞ Acidi carbolici ..... ʒ i
Glycerin ..... ʒ iv
Water ..... ʒ xvi

A tablespoonful of this mixture in a quart of water. Massei advises injection two or three times a day of a solution of resorcin (4-1,000, 5-1,000). After the injections, olive oil and menthol (1-50) are instilled into the nostrils, followed by a plug of cotton on which is a little ointment of

℞ Iodoform ..... gr. xx
Peruvian balsam ..... ʒ ss
Vaselin ..... ʒ i

The general treatment consists in cod-liver oil in cases of scrofula, iron in anemic patients and a cure at Challes Canterets or similar sulphurous waters.

Arthritic Pharyngitis.—In the treatment of arthritic pharyngitis the acute and chronic stages must be taken into account. In the former H. Heckel advises rest in bed, sudation, hot drinks. The local treatment consists in the employment of an antiseptic ointment passed into both nostrils morning and evennig:

℞ Menthol ..... gr. vi
Boric acid ..... gr. xv
Vaseline ..... ʒ i

Inhalations of

℞ Peruvian balsam.....
Proof spirit.....
.....aeq. partes.

A few drops in half a glass of boiling water to be inhaled five minutes, three or four times a day.

In the chronic form sulphurous or arsenical waters should be used both internally and externally in the form of spray. Of these mineral waters the best are Saint Honoré or Challes (sulphurous), Mont-Deve, Bourboule (arsenical). In certain cases it is well to alternate, three weeks surphur, three weeks arsenic. In the trophic forms, M. Heckel recommends the application of

℞ Iodide ..... gr. xv
Iodine of potassium ..... ʒ i
Water ..... ʒ i ½

The pills of Morell Mackenzie are also of service:

℞ Chlorate of potash..... ʒ iii
Extract of eucalyptus..... ʒ i
Cubebs powder ..... ʒ ss

For one pill. Two or three before speaking or singing.

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PRESENT STATUS OF EPIDEMIC CEREBROSPINAL MENINGITIS.

Notwithstanding the advent of warmer weather, epidemic cerebrospinal meningitis has not thus far at least lessened its ravages to any significant degree in New York City. Altogether since October there have been nearly fifteen hundred cases of the disease in New York City, and during the last five or six weeks, the average mortality has been nearly or quite one hundred per week.

Not only has the disease been more widely epidemic than it was last year, but it has been more fatal in its effect and the general consensus of opinion expressed during the discussion on the disease at the Academy of Medicine on Thursday, April 20, was that the average mortality would be nearly twenty per cent. higher than it was last year. Another very serious feature is the fact that while those who recovered last year, as a rule recovered completely, serious sequelæ such as deafness and blindness are occurring more frequently this year and sudden deaths during the course of what looks like assured convalescence have become so common that all hospital attendants hesitate to give any expression of a favorable prognosis.

The most careful investigation has seemed to show that the diplococcus of Weichselbaum (*Diplococcus meningitidis intracellularis*), is the most important, if not the only etiological micro-organism. Some pathologists have come to have the impression that this organism may be found in the cerebrospinal fluid of those not suffering from the disease. Somehow there is the feeling that as in the case of the pneumococcus which Weichselbaum's micro-organism resembles in so many respects, the microbe may be present without actually causing the disease. Some special susceptibility of the patient is needed for the nexus of true pathological etiology.

Notwithstanding the definite acceptance on practically all sides of the causative nature of this microbe, the distribution of the disease remains as much a mystery as ever. Observations as to the spread of the disease are lacking in those elements of certainty which would indicate the method of distribution. In New York, notwithstanding all the cases that have been at the hospitals, only one medical attendant, a nurse, has been stricken by the disease and, as she had been out of the hospital several times and had done much traveling during the days preceding the attack, there seems no special reason for attributing the contagion to her work in the hospital, where she was no more exposed than so many others.

Much has been said recently of the question of some intermediate host, a parasite like the bedbug or the flea, as the carrier of the contagious material. With regard to the bedbug, its supposed rôle in the distribution of intermittent fever has been suggested as favoring the theory of its also being the carrier in this disease. There has been considerable doubt thrown on the importance of the bedbug as a distributor of intermittent fever in recent years, and so this argument fails to have the weight it would have had a decade ago. There are many aspects of the question, however, that favor this method of distribution. People who visit patients in their tenement homes seem to be likely to contract the disease, and this would account for its spread in certain quarters of the city. Hospital attendants, however, do not catch the disease, because of the absence of these carriers of the contagion and the fact that reasonable care is taken to prevent their presence.

Epidemic cerebrospinal meningitis does not occur in the tropics, however, though the *Cimex lectularius* does and the disease usually abates with warm weather in any climate to cease to be epidemic during the hot weather, though the sup-

posed host does not by any means confine his ravages to the winter months but, as many a summer boarder has found to his cost, may be particularly ravenous during the heated term. As regards fleas there is no evidence, so that while the suspicion that dogs and cats may be agents in the distribution of the disease at once suggests the thought of some parasite of these animals as the direct transferring factor we must wait for observation to throw light where conflicting theories only serve to obscure the situation.

Besides, it would seem that if infection can take place through the puncture of a cutaneous surface, then more cases of the disease will be seen among physicians than has been the case. Most of the New York patients suffering from cerebrospinal meningitis have been subjected to lumbar puncture and the removal of a certain amount of the fluid from the subarachnoid space. As this fluid usually exists in the disease under pressure, it was almost inevitable that the hands of the physician making the spinal puncture should be soiled with the fluid which in all cases has been shown to contain large numbers of the *Diplococcus meningitidis*. It would seem then that the presence of various small lesions on the fingers, so common around the finger nails, especially during the cold weather, would almost surely have given opportunities for infection. Such has not proven to be the case, however, and this would seem to argue against any infection through a small cutaneous wound.

On the other hand, the assumption that the disease is conveyed through some mucous membrane is weakened by the invariable absence of any localized process on the mucous surfaces as a symptom of the affection. For a time it was supposed that Weichselbaum's diplococcus had been found in the nose. The micro-organism found, however, has been proven to be the *Micrococcus catarrhalis*. Its relation to the Weichselbaum organism is not yet a settled matter. The question of contagion would seem to be extremely doubtful. The occurrence, however, of a certain number of cases in the same house and in the same family and especially the occurrence of eight cases of the disease in one tenement house has called attention to the danger of auxiliary conditions. The Board of Health is taking an excellent precaution and one thoroughly justified by the circumstances in requiring the disease to be reported and in insisting on isolation of the patients and disinfection of all apartments in which the disease has occurred.

With regard to the treatment of the disease very little has been accomplished, notwithstanding the immense amount of time and thought that has been given to the affection by the best physicians in the city during the past six months. As brought out at the last meeting of the Academy, diphtheria antitoxin has failed to fulfil the promise of its use in the first few cases on which it was employed. As a control, horse serum was used in a certain number of cases alongside of those treated with diphtheria antitoxin, but this also proved to be of no effect. Only symptomatic treatment seems to be of any service. The patients must be kept quiet and must be given as much morphine as will lessen their pain and prevent restlessness. Hot baths have been found excellent in making the patients more quiet and so lessening the amount of morphine necessary. Only one bit of special treatment seems promising: At the beginning of the disease, as suggested by Dr. Tilden Brown, at the last meeting of the New York Harvard Medical Society, the pus in the brain cavity is fluid. If the patient's head is kept well lifted then gravity will aid to a notable extent in relieving the pressure upon the brain itself and thus lessen one of the most serious dangers of the disease. In order to be of any service, the head must be raised from the very beginning of the disease, as after a few days the pus becomes thicker in consistency and will not flow readily. It is a startling commentary on our vaunted advance in medicine that notwithstanding the opportunities which have been so abundantly furnished for the study of the disease we have learned so little that is new about it and nothing at all that can be added to the therapeutic resources of the past.

GASTRO-ENTEROSTOMY VS. PYLOROPLASTY.

With the evolution of surgery into an exact science and the perfection of its technic operations on the stomach and intestines become more frequent and more important. Hence the world will especially welcome research reports which give further knowledge as to the physiological, that is, physical, conditions under which these hollow viscera do their complicated functions. From Boston has come already much information concerning the movements of the gut, the Roentgen rays having shown W. B. Cannon, of Harvard, more of this matter than was known before—and of a very practical nature. More recently this promising specializer has been working with a practical surgeon, J. B. Blake, and their com-

bined observations and experiments have produced some results practical and perhaps important to enteric surgeons.

It has appeared already from the physiological work of Cannon that the shape of the stomach when empty of food is very different from that form with a small upper curvature and a large rounded convexity below with which the textbooks have made us so familiar. It is now more than likely that the vacant stomach is shaped much like a man's riding-boot, suspended between two relatively fixed points, the cardia and the pylorus. If this is true, it is obvious that the point supposed to be the lowest in the stomach on the old ideas of the viscus's shape is not really so at all times, but rather to the left of the spot from which the gastric contents would most readily pass when the stomach is nearly empty.

Many surgeons have over and over seen their operations of gastro-enterostomy made worse than useless in cases of partial pyloric stenosis by a vicious circulation of part of the chyme. That little food which could be forced out at the pylorus went no further down the gut than the artificial opening into the stomach, but then passed into the stomach again, decomposed and gave rise to the distress so common after this attempt at surgical cure. The reason for this, Cannon and Blake found to be in the sharp occluding bend in the intestine usually found just beyond the opening into the stomach,—a condition difficult to avoid for the following supposed reason: In making the fistula, some centimeters of the circular muscular fibers of the gut are severed and this prevents the occurrence of normal peristalsis at the point beyond the opening and the consequent extension of the intestine into a normal curve longitudinally obtaining in the uninjured tube. Normal peristalsis has been shown to be a two-fold process, a double slow wave of constriction accompanied by dilation, the progression, according to Magnus, being dependent on the integrity of Auerbach's plexus governing the circular fibers of muscle. In the absence of the normal peristalsis there is nothing to prevent the persistence of sharp occluding angles in the multifold intestines.

The practical application of these facts and suppositions, based on numerous studies on the brutes, is almost obvious. Gastro-enterostomy is an uncertain operation because, first, of the difficulty of locating the proper point for the opening between the gut and the stomach, and second, because of the danger that occlusion of the intestine by bending will occasion the vicious circle of chyme already described. On the other hand, as was found by actual experiments, the gastric mechanism tends to force the contents out through even a small opening at the pylorus and rarely only through a large orifice artificially made in the stomach's wall. Therefore in general, this research substantially recommends the abandonment of gastro-enterostomy and the general adoption of pyloroplasty in its stead. Follow the lead of nature, says the work, and make it possible for the stomach to empty itself where its movements practically compel all contained matter to be extruded. Sometimes resection will be necessary and often one of the several operations for enlarging an opening not occluded but only stenosed. At any rate, by making it possible for the stomach to empty itself by its normal outlet the food will be started toward digestion in the duodenum and jejunum without the possibility of the occurrence of the ills so common after gastro-enterostomy. But in case the latter operation is found advisable, make the opening far to the operator's left and very large, and sew the intestines for some centimeters along the wall of the stomach to the right of the opening in order that normal peristalsis be not disturbed.

By researches like this, abdominal surgery is rapidly becoming an art full of hope and satisfaction to the world—a new art, but surely a blessed one already.

THE SIGNIFICANCE OF RHYTHM IN VITAL PHENOMENA.

Rhythm displays itself in so many widely different physiological processes, that an investigation of its origin and meaning can be fraught with no little interest. An enumeration of the vital processes in which rhythmic variations occur, begins with the very basal phenomena of life and ends with the highly refined psychic activities.

In the unicellular organisms, rhythm must be recognized as an innate property of protoplasm. The regular pulsations of the contractile vacuoles of the *Paramecium*, is a case in point. In the highest of all organisms, man, the grosser manifestations of rhythm are seen in the beating of the heart, the movements of respiration, the waving of the cilia of the respiratory passages, the spontaneous and regular contraction of the arteries, the contractions of the kidneys and uterus, and the rhythmic variations in muscular tone. The subtler examples of this ebb and flow of life are

seen in the psychic activities. The alternation of sleep and waking—that regular daily spontaneous transition from consciousness, with all the accompanying physical powers in full swing, to unconsciousness, with its accompanying lowering of the physical tone, is the most apparent and striking manifestation of mental rhythm. Recently, Fano has described minor rhythmic variations in the nervous system, more particularly in the reflex centers of the spinal cord.

What is the significance of physiological rhythm? As regards its purpose in certain functions of the body, there can be no doubt that it plays an indispensable rôle. Thus, in the case of the heart-beat, the regular alternation of work and rest is an adaptation to the needs of an efficient circulation. Likewise the rhythmic contractions of the respiratory muscles are a purposeful adaptation for securing oxygenation of the blood. On the other hand, when it comes to explain the origin of rhythm, one encounters a subject that is enshrouded in mystery. To say that the regular contractions of the cardiac and respiratory muscles are the result of automatic impulses emanating from the vital centers in the medulla oblongata, is no explanation, and merely transfers the difficulty one step backward. The attention is then riveted on the nerve-centers and the question occurs, how are these automatic impulses initiated? Physiology has hitherto pointed to the blood as affording the stimulus which sets into activity the machinery of the respiratory center. Mosso has recently shown that carbon dioxide is the real stimulus of the respiratory center, for by fixing the carbon dioxide by means of injections of caustic soda into the blood, the respiratory movements cease. It seems unnecessary, however, in the light of the interesting researches just reported by Pari, to seek the cause of automatic phenomena outside of the nerve-centers in which they originate.

Rhythm is a fundamental attribute of protoplasm, and is closely correlated with the process of metabolism. It is necessary to recall Hering's definition of life as the resultant of two opposite forces, anabolism and catabolism, to understand how, by the alternate predominance of one or the other of these processes of repair and waste, the resulting vital manifestations necessarily assume a rhythmic character. It is upon this hypothesis that Pari explains the rhythmic oscillations which have already been observed by Fano in the reflex centers of the spinal cord.

According to this hypothesis, which is an appealing one, life must be regarded as a discontinuous process, or at least as a process having alternating phases of maximal and minimal intensity. It would be graphically represented by a wavy line. The crests of the waves correspond to the highest nutritional states of the protoplasm, while the depressions between the waves correspond to the exhaustion of the living matter.

The above discussion may help to elucidate the highly important discovery by Pari that it is possible to change at will the rate of the rhythmic variations in the nerve-centers. By varying the rapidity of the stimuli applied successively to the afferent spinal nerves, the reflex centers, besides producing the customary muscular contractions, betray an oscillation in their excitability which is synchronous with the rate of stimulation. The intervals between the oscillations are exactly double the intervals between the stimuli.

The nerve-centers may be compared to a watch whose works may be made to go fast or slow by means of a small lever. The regular rise and fall in the energy of the nerve-cells may be quickened or slowed, by increasing or decreasing the rapidity of the stimuli. In this susceptibility of the coordinating cells of the body to synchronous variations, is to be seen one of the most interesting and useful adaptive capacities of the organism. The heart depends for the rate of its rhythm upon the impulses descending along the vagus and the accelerator nerves. That is, the heart-muscle which has an innate power to contract rhythmically independently of the nervous system, may have the tempo of its rhythm varied according to the nature of the stimuli affecting it from without. What is true of the heart is true also of the organism as a whole.

Pari defines habit as an expression of the fact that the bodily rhythms have been adjusted to the mode of stimulation. The reason why the lull in the vital forces, whose manifestation in the nervous system results in sleep, occurs every day at the same time, is because the body, and more particularly the nervous system, has adjusted itself to the habits of the individual. As a proof of this is the fact that one may reverse this alternation of sleep and waking at will, as seen in the case of people who are obliged to sleep during the day. It has been observed that the diurnal variations in the bodily temperature also suffer a similar reversal.

May not the periodic return of the menstrual flow have some connection with the changes of

the moon? There can be no doubt that astronomical and meteorological conditions have been important factors in fixing the habits of the race in the past. That the sexual crisis in the female is accompanied by a similar rhythmical excitation of the forces of the body as a whole was pointed out a number of years ago by Mary Putnam Jacobi. It is probable also that males exhibit a monthly variation of the metabolic and sexual functions.

In the moral sphere rhythm is also evident. Sociologists have probed into the statistics of crime, suicide, etc., and have discovered a periodic variation. A college president recently alluded to the fact that most crimes occur on Saturdays, and explained this on the hypothesis that the end of the week finds the individual fatigued, with his moral and mental resistance at lowest ebb. This illustration at least harmonizes with the view that mental rhythms are the play of external forces.

Since rhythm is one of the natural phenomena of physiology, one would expect to find it also in abnormal physiology or pathology. This is actually the case. Jacques Loeb was able to produce spontaneous rhythmic contractions of skeletal muscles by disturbing the chemical equilibrium of inorganic salts in the fluid bathing the muscle-fibers. The disturbances of the heat-regulating apparatus produced by parasitic invasion of the organism, as seen in tuberculosis, malaria, relapsing fever, etc., assume a rhythmic character. The annual return of hay fever on exactly the same day and at exactly the same hour as it has been wont to appear in the past, the periodic phenomena of circular insanity, the dancing manias of the Middle Ages, may be cited as a few of the numerous examples of rhythms in neuropathology.

The most interesting characteristic of the rhythmic oscillations of the nerve-cells is that they are susceptible of being influenced by rhythmic phenomena of the outer world. Auditory stimuli are effective in this direction, as seen in the wonderful power which martial music has over the minds of men. One instinctively adjusts the pace to the tempo of the music. If the latter has such a certain power over the healthy mind, making the mental chords vibrate in unison with its own, can one deny that it may have a similar power over the abnormal mind? This opens up a suggestive chapter on the possible uses of music in mental therapeutics.

Experts on physical culture have already realized the importance of rhythm in physical education, and the dance has established itself as a necessary feature of the gymnasium course. This is a concession to the view that muscular development is not the sole consideration of physical education, but that the harmonious development of the nervous system is an equally, if not a more, important matter. One thing is certain: Whatever will tend to quiet the intense nervous restlessness of the American people, to diminish the speed at which life is being run, will succeed in reducing the number of those, who, from the standpoint of their nervous energy, become bankrupt. That rhythmic habits, exercises, music, if you will, may to a certain extent be of value in this direction, there can be little doubt.

ECHOES AND NEWS.

NEW YORK.

Hospital Appointments.—The following is the list from the College of Physicians and Surgeons for the past week: *General Memorial,* R. Hutchinson. *Bellevue* (P. and S. division), first, D. White, E. B. Armstrong, Gorgon Lindsay, C. T. Harbeck, M. E. Lewis. *Bushwick Avenue, Brooklyn,* H. M. Friedman. *French,* M. E. Smith, C. Krunwiede, L. F. Meloney. *St. Francis,* C. I. Prescott, W. W. St. John, C. F. Kurpick. *King's County, Brooklyn,* F. B. Hart. *Hudson Street,* first, G. A. Merrill, C. T. Leslie, M. D. Bryant. *Englewood, N. J.,* P. E. Brundage. *Williamsburg, Brooklyn,* first, T. C. McCoy; Alternate, L. L. Wertheim. *St. Mary's, Brooklyn,* first, E. J. Cronin, L. A. Parker. *St. John's, Yonkers,* first, H. H. Stevens, H. E. Ricketts.

Otology.—A Course for the Training of Specialists.—For matriculates desiring to become specialists, a personal course is now being given on the anatomy of the ear (sections to be made by matriculates), the physiology and the pathological-anatomy, at the Post-Graduate Medical School and Hospital. Also personal instruction and practice in the use of aural forks and other instruments; the diagnosis and treatment of aural diseases and the minor operative procedures. The course is under the direction of Drs. Bryant and Kopetzky, and covers a period of six months, daily instruction. The fee for the entire course is $200. The matriculate can join the class at any time. Major operative surgery to be elective and under the direction of Dr. Held. Further particulars to be had on application.

Cornell University Medical College.—The following additional hospital appointments have been obtained by the Graduating Class of Cornell University Medical College: *Presbyterian Hospital,* Robert LeRoy Hutton, Alvin W. Baird, Charles Hartwell Cocke. *New York Hospital,* first, Otto Louis Goehle, Rollin Hills. *Bellevue Hospital,* Second Division, first, Albert N. Benedict, John Rutherford Herrick, Earle W. Phillips, John Homer Cudmore, Horace Westlake Frink, William Murray Kerr. *Fordham Hospital,* first, William Hinz. *Paterson General Hospital,* Richard Sandford Mallon. *St. John's Hospital, Brooklyn,* first, Robert Rhoode Patterson. *St. Catherine's Hospitol, Brooklyn,* first, Charles A. Gordon, J. L. De Varona. *Woman's Hospital and Infant's Home, Detriot, Mich.,* Z. M. Clark. *St. Mary's Hospital, Jamaica,* first, John Joseph

McGlade. *St. Vincent's Hospital, Staten Island*, first Charles W. Murset. *Sydenham Hospital*, first, Morris James Klein. *St. Mary's Hospital, Brooklyn*, James Francis Coyle. *St. Joseph's Hospital, Yonkers*, John Francis Gannon. *St. Michael's Hospital, Newark*, Ernest March Poate.

Cerebrospinal Meningitis.—Coincident with the appointment by the Department of Health of a commission of eminent physicians for the investigation of cerebrospinal meningitis, a corps of medical inspectors, five in number, was organized and assigned to the sanitary supervision of the disease in the Borough of Manhattan. These physicians attend to the isolation and quarantine of patients at their homes, order the necessary disinfection of premises and bedding in cases which have recovered, died or been removed to a hospital, and report as to the sanitary condition of the premises and any violation of the Sanitary Code. They have had the opportunity of observing a large number of cases of the disease, and their services are at the disposal of any physician who may wish assistance in diagnosis of suspected cases of cerebrospinal meningitis. A physician trained in such work, has been assigned to the performance of lumbar puncture in cases of cerebrospinal meningitis at the request of the attending physician. The Department of Health advises that lumbar puncture be done in all cases where practical; both as an aid to diagnosis, and in order to obtain material for bacteriological study and consequent advancement in our knowledge of the disease. Requests for the services of a physician for diagnosis, disinfection, or lumbar puncture should be made direct to the Department of Health, Fifty-fifth Street and Sixth Avenue (Telephone, 1204 Columbus), where they will receive prompt attention.

Hospital Fund Allotted.—Sums aggregating $76,000 will be distributed at once among various hospitals of the city as the result of an apportionment made last week by the Distributing Committee of the Hospital Saturday and Sunday Association. The committee met in the Mayor's office at City Hall, with Mayor McClellan and Postmaster Wilcox present as ex-officio members, besides Morris K. Jesup, James Speyer, John Claflin, and James C. Fargo. The $76,000 was apportioned as follows: Montefiore Home and Hospital, $7,600.00; Mount Sinai Hospital, $5,059.21; St. Luke's Hospital, $4,370.24; German Hospital, $4,397.80; Roosevelt Hospital, $3,941.31; Nursery and Children's Hospital, $3,870.44; Lebanon Hospital, $3,682.05; Lincoln Hospital and Home, $3,654.30; Ruptured and Crippled Hospital, $3,569.32; Post-Graduate Hospital, $3,036.55; New York Infants' Asylum, $2,861.84; St. Mary's Free Hospital for Children, $2,512.03; Home for Incurables, $2,310.94; Sloane Maternity Hospital, $2,038.07; Isabella Heimath, $1,876.81; Hospital of the Lying-In Society, $1,830.70; Home of the Sisters of Misericordia, $1,825.40; French Hospital, $1,824.39; Beth Israel Hospital, $1,606.05; Orthopedic Dispensary and Hospital, $1,529.83; House of the Holy Comforter, $1,159.02; Homeopathic College and Hospital, $1,031.70; New York Eye and Ear Infirmary, $997.58; Babies' Hospital, $976.93; House of Rest for Consumptives, $857.40; New York Ophthalmic Hospital, $812.64; St. Mark's Hospital, $811.08; New York Polyclinic Hospital, $793.80; Manhattan Eye and Ear Hospital, $751.65; J. Hood Wright Memorial Hospital, $746.71; New York Skin and Cancer Hospital, $741.79; New York Infirmary for Women and Children, $667.76; General Memorial Hospital, $573.75; Hahnemann Hospital, $514.25; St. Andrew's Convalescent Hospital, $316.65; New York Medical College and Hospital for Women, $250.00; New York Home for Convalescents, $250.00; New York Ophthalmic and Aural Institute, $250.00. The apportionment is based on the free work performed by the various institutions during the past year.

PHILADELPHIA.

Donation Day at the Orthopedic Hospital.—One of the days last week was set apart to receive donations at the Orthopedic Hospital.

Typhoid and Meningitis Increasing.—During the last week 149 new cases of typhoid fever were reported to the Board of Health. Although the chief seat of the disease is in the Twenty-fifth, Thirty-first and Thirty-third Wards, many cases were reported from all over the city. Nine cases of cerebrospinal meningitis were reported also.

Resigned from the Board of Examiners.—Because of the wish expressed by Director Martin to have the Civil Service Examining Board free from members connected with medical schools, Dr. Joseph McFarland handed in his resignation. There were 125 applicants at the examination which was held in the city hall Thursday, April 20, for resident physicians to serve in the Philadelphia Hospital.

Bullet Removed from Spinal Canal.—Albert Tripp, a medical student, of Ann Arbor University, Mich., who for two years has been carrying a bullet in his spinal canal had it removed at the Pennsylvania Hospital, last week. The operation was performed by Dr. Francis Stewart, who several years ago operated successfully upon a fracture of the spinal column in the same hospital. Tripp has apparently recovered from some of the paralysis incident to the lodgment of the bullet.

An Attempt to Recover Damages for Operating Upon a Patient Without the Consent of the Parent.—William Hibbert brought suit against Dr. D. P. Maddux, physician to the J. Lewis Crozer Hospital, Chester, Pa., to recover $20,000 damages for an operation upon his daughter without consent. Dr. William Van Lennep, Dr. Joseph Price, and Dr. Theodore L. Chase, all testified that Dr. Maddux did right in performing the operation. The jury disagreed and the case will be brought up again at the next term of court.

Talks to Glass Blowers' Union on Tuberculosis.—In presenting this subject to the union Dr. George W. Norris informed his hearers that in every year 2,800 people die of this disease in Philadelphia alone, while 4,000 die in Pennsylvania and 100,000 die in the United States every year. Taking the whole world into consideration two people die every minute. He also told them that lack of light is the most important predisposing cause, therefore the disease is seen most frequently in weavers, glassblowers, cigarmakers, printers, sweat-shop workers, bartenders and millworkers.

Dr. Osler on "Student Life."—In his talk before the members of the Stillé Medical Society, Dr. Osler said "the student is a lover courting a mistress who is ever seeking to elude his grasp." He also told his hearers that the student finds it too easy to stray away, and it is for that reason that we have the dilettante and the adventurer who delves into knowledge at his pleasure. Men will not take the time to get to the heart of a matter. There were present on the stage, Dr. James McAlister, president of the Drexel Institute; Dr. DeForrest Willard, Dr. J. William White, Dr. John H. Musser, Dr. R. Tait Mackenzie, Prof. Alvin Smith, Dr. Alfred Stengel, Mr. Nelson W. Janney.

Conference of Medical Men Before the Governor.—The bill passed by the State Legislature creating a Board of Examiners for osteopathic physicians has

aroused the medical societies; the County Medical Society has appointed several physicians to confer with the Governor and last week he met them to consider the bill pro and con. Dr. Henry Beates, president of the State Board of Examiners, Dr. L. Webster Fox, of the Medico-Chirurgical, and brother of the author of the bill, and Dr. Alfred Stengel, of the University of Pennsylvania, spoke against the bill, while Dr. Mason W. Pressler spoke for it. The Governor has not as yet intimated what he will do in regard to the matter.

Section on Ophthalmology of the College of Physicians.—This meeting was held April 18. The scientific program was opened by Dr. Charles K. Mills, who read a paper entitled "Subdivisions of the Visual Cortex, with Remarks on Cortical Color Representation." Dr. Wm. Posey read a paper on "Conjunctivitis Excited by Contact with Horses." Dr. Lewis Ziegler read the next paper on "Bilateral Lymphomata of the Lacrimal, Parotid and Submaxillary Glands, due to Tonsillar Hypertrophy and Consequent Suboxidation." Dr. Howard F. Hansel read a paper entitled "Some Lesions of High Myopia, Clinically Considered." Dr. E. A. Shumway exhibited "A Case of Perforating Wound of the Cornea and Iris Without Injury to the Lens."

Medical Jurisprudence Society.—The meeting of this society was held April 17. Dr. Hendrie Lloyd read a paper entitled "The Need of an Asylum for the Criminal Insane in Pennsylvania." During the course of the paper he informed the society that the criminal insane and the insane convicts should not be allowed to associate with the innocent insane nor should the first named class be treated in the same hospital. The insane convicts require and should be given the same prison discipline as that of the penitentiaries. He maintained that there are enough criminal insane in the asylums, almshouses and penitentiaries throughout the State to warrant the establishment of a separate asylum for their care and treatment. The paper was discussed by John A. Clarke, Dr. W. W. Hawke, physician in charge of the insane department of the Philadelphia Hospital; Dr. W. D. Robinson and Dr. Phillips, of the Eastern Penitentiary. The following officers were elected: President, Dr. H. W. Catell; vice-presidents, Adolph Eichholz and Dr. W. M. L. Coplin; secretary, Dr. Henry Leffmann; treasurer, Paschall H. Coggins.

CHICAGO.

Appointment of Dr. Croftan.—Dr. Alfred C. Croftan has been appointed attending physician to St. Elizabeth's Hospital.

Emergency Hospital Incorporated.—The Chicago Emergency Hospital was recently incorporated with a capital stock of $25,000, by Dr. Richard M. Fletcher, Anna Fletcher, and W. M. Ford.

State of Chicago's Health.—At the close of ten years' service as Commissioner of Health, in the Bulletin of the Health Department for April 15, certain data were presented showing the decreasing mortality of Chicago. These data are set forth in full in the annual report of the Department for the year 1904, now in press.

Present Status of a Sanatorium for Tuberculosis in Illinois.—The bill providing for the erection of a State sanatorium for persons afflicted with tuberculosis, known as the Glacken bill, has been favorably recommended by the House Committee on Appropriations. The appropriation, however, has been reduced from $200,000 to $50,000.

Sewage Disposal.—The State Board of Health contemplates making an investigation into the methods of sewage disposal in smaller cities of the State, with a view to remedying faulty conditions which may exist. These investigations will cover the various septic tanks in use to determine the degree of purification secured, and to what extent this method of purification may be recommended.

American Association of Pathologists and Bacteriologists.—The fifth annual meeting of this association was held at the University of Chicago, April 20 and 21. There were about 150 members in attendance. The sessions were held at the Reynolds Club and the Hull Biological Laboratory. The following officers were elected for the ensuing year: President, Dr. James Ewing, New York; Vice-President, Dr. A. S. Warthin, Ann Arbor, Mich.; Secretary, Dr. H. C. Emit, Boston; Treasurer, Dr. N. Hugh Williams, Buffalo, Member of the National Council, Dr. F. D. Mallory, Boston. The association held a banquet at the Chicago Athletic Club.

CANADA.

Tuberculosis Disinfection in Montreal.—The Tuberculosis League of Montreal have decided to disinfect residences and enable people to comply with the law at a nominal cost. They will bring to the notice of the public, especially every spring time, when so many people are moving, the advisability of disinfection after tuberculosis. By a by-law of the Montreal City Council, the duty is imposed upon the proprietor of every house when it becomes vacant of having it thoroughly disinfected and put in a sanitary condition before it is let again to another tenant. An effort will be made to see that this by-law is complied with on the part of property owners.

Dr. Wilfrid T. Grenfell in Toronto.—Dr. Wilfrid T. Grenfell, who is described as the comfort and hope of a whole people and the hero of the Labrador Coast, has been in Toronto during the past week and lectured before the Canadian Club. He is on his annual tour of leading cities of the United States and Canada, interesting philanthropists in his mission among the fisherfolk of Newfoundland and Labrador. Dr. Grenfell is a graduate of medicine of the University of Oxford and for thirteen years has been ministering to the spiritual and medical wants of a constituency of 2,000 miles in extent. Probably no other English-speaking doctor ever made such extensive trips to minister to the sufferings and illnesses of a community as does Dr. Grenfell. He has had erected in a primitive way three hospitals and Lord Strathcona has supplied him with a ship, with which, when the waters are navigable, he plies the coast line. For a patient to have an ear frozen while in a hospital, seems a very strange thing to most of us, but this actually occurred last winter in one of Dr. Grenfell's hospitals. Every year 2,000 people are attended to by himself and his assistants; and this year he has been successful in persuading two specialists to spend the summer with him.

Annual Report, Samaritan Women's Hospital, Montreal.—The Samaritan Hospital for Women, Montreal, held its eleventh annual meeting last week, and the report, submitted by the surgeon-in-chief, Dr. Lapthorn Smith, stated that during 1904 there had been admitted to this institution 146 women, 28 of whom had received medical treatment, and 118 of whom had undergone surgical operations. Out of fifty major operations there was but one death, thus disclosing a very low death rate. Reference was made in the report to the very serious illness of Dr. F. W. Campbell, a member of the consulting staff, who is also the Dean of the Medical Faculty of Bishop's College University.

Dr. S. F. Wilson was added to the consulting staff. Speaking of the nursing staff, Dr. Smith stated that one of the crying needs of the times was a nurse who could be got at a dollar to a dollar and a half a day. Dr. Smith also referred to the absolute need of a new hospital building and hoped that some philanthropist would come forward and build a new Samaritan Hospital. Continuing, Dr. Smith said that there were two things about the work of the Samaritan Hospital that could not be too widely known: First, that it is not a maternity hospital; and second, that the Samaritan only takes in married women or girls, whose characters are above reproach, and who require gynecological treatment. It is not a rescue home nor a lying-in hospital, and the character of all patients must be vouched for by physician and a clergyman.

GENERAL.

Meeting of Medico-Psychologists.—The sixty-first session of the American Medico-Psychological Association, at San Antonio, Texas, closed April 20, after choosing St. Paul for the next meeting place. The papers and discussions hinged about the proposal to prevent the spread of insanity by legislation. Dr. H. W. Miller, of Taunton, Mass., drew the conclusion that the States should control the marriage of persons afflicted with mental maladies. Dr. C. G. Hill, of Baltimore, took a contrary view. The tendency of heredity is always to the better, he said.

Cerebrospinal Meningitis.—The epidemic of cerebrospinal meningitis which has been in progress in Prussian Silesia since about the end of last October, is reported to have spread over the frontier into Austrian Galicia. In response to a question on the subject in the Prussian Landtag last week the Minister for Public Instruction, Religion and Medical Matters, stated that in some of the affected districts there had been a large number of cases with a heavy mortality, but there was no great cause for alarm. Such measures as were possible were in operation.

Health of Canal Zone.—Secretary Taft has received the report of Col. Gorgas, in charge of the sanitation of the Canal Zone, for the month of March, from Gov. Davis, by cable, as follows: "Gorgas's health report for March shows steady improvement. End of March employees were about 9,000; sick in hospitals, 153; total deaths, 11. Equals rate 14 per 1,000; favorable anywhere. In the last thirty days to date four cases yellow fever throughout the whole Isthmus, of which one was in Panama. In previous thirty days twelve cases. Each house in Panama has been fumigated; a great many, several times."

Proprietary Medicines in Cuba.—Several deaths having recently occurred in Cuba as the consequence of an overdose of one or another proprietary medicine, the Cuban Government revived an old Spanish law requiring that the formula of every nostrum should be printed on the label of the bottle in which it is sold. Manufacturers of American medicines, foreseeing the loss of the secrecy, which is the most potent ingredient in their products, brought all available influence to bear on the Cuban Government, which gave way to the extent of conceding that the formula of every proprietary medicine should be filed with the Cuban Government, which undertook to keep it secret. If the formula shows cause for belief that the remedy is dangerous, its sale will be hedged about with suitable restrictions.

American Medical Association.—Itinerary of personally conducted special train to and from the annual meeting of the American Medical Association, to be held at Portland, Oregon, July 10 to 14, 1905, visiting Chicago, St. Paul, Minneapolis, Lake Minnetonka, Yellowstone Park, Butte, North Yakima, Tacoma, Seattle, Portland, Columbia River, San Francisco, Mt. Tamalpais, Monterey, Santa Barbara, Los Angeles, Santa Catalina Island, Mt. Lowe, Riverside, Redlands, Lucky Baldwin's Range, Salt Lake City, Salt Air, Royal Gorge, Glenwood Springs, Manitou, Pike's Peak, Cripple Creek, Garden of the Gods, Denver, Georgetown Loop, Kansas City, St. Louis, Niagara Falls. Train leaves June 24, returning about August 3, with stop-over privileges at Niagara Falls. For full particulars apply to Dr. Frederick Holme Wiggin, 55 West Thirty-sixth Street, New York City.

Central Wisconsin Medical Society.—The third quarterly meeting of this society was held in the City Hall in Beloit, Tuesday, April 25, 1905. The following papers were read: "Rational Anatomy and its Relation to Surgery," by Dr. C. H. Clarke, of Shopiere; "Professional Ethics," by Dr. D. R. Connell of Beloit; L. F. Bennett, Beloit, and J. F. Pember, Janesville; "Some Phases of Gall-Stone Disease, and its Surgical Treatment," by Dr. Albert I. Bouffieur, Chicago; "Lacerated Perineum. When shall we repair it? With conclusions drawn from ten cases," by Dr. C. C. Gratiot, Schullsburg; Paper, "Inversion of the Uterus, with report of case," by Dr. P. L. Markley, of Rockford, Ill.; "Iritis," by Dr. C. R. Treat, of Sharon; "Recent Views Regarding Appendicitis," by Dr. J. A. Jackson, of Madison; "Cerebrospinal Meningitis," by Dr. G. W. Fifield, of Janesville; "Otitis Media Acuta," by Dr. F. T. Nye, of Beloit; "Radical Cure of Hernia," by Dr. George Keenan, of Madison; "Some Features in Conduct of Normal Labor," by Dr. C. S. Sheldon, of Madison.

American Medical Association.—The following letter has been received from Dr. Kenneth J. Mackenzie, Chairman, Committee on Arrangements of the American Medical Association: "We are planning several trips at the present time, and we are contemplating giving the association a nice trip on the Colorado River to enable them to see the best part of the scenery. We may have also an excursion to Alaska and expect to be able to charter a steamer, which will leave at a convenient date following the meeting of the American Medical Association. The regular excursion rates are $100 from Seattle or Tacoma and return. We have arranged a special rate of $70 for our trip. The steamer will stop at all southeastern Alaska points, including Katchikan, Wrangel, Douglas Island, Treadwell, Juneau, Skagway and Sitka. This trip will consume about twelve days, and is the finest trip that we can offer, and it is one of the finest in the world. We have also made arrangements with the Pacific Mail Steamship Company, and they have placed at our disposal accommodations for fifty excursions on the Korea, which sails from San Francisco on July 22. The rate from San Francisco to Honolulu and return will be $110; from San Francisco to Yokohama and return $240; from San Francisco to Hongkong and return $270. The regular rate to Hongkong being $347. We are also planning to give the members of the association a side trip to the coast from Portland, which will enable them to see a Pacific Ocean seaside resort, with a run of at least one hundred miles on the Columbia by rail or boat. The meeting promises to be well attended and to be a most successful one."

The Health of Seven Millions.—Gov. Pennypacker, of Pennsylvania, would assume a grave responsibility if he should in any way discourage the effort to provide that State with a better system for the safeguarding of the public health, writes the New York

Times. Recent experiences with typhoid epidemics emphasize the need of a State Board of Health with such powers as shall enable it to interpose between communities and the kind of negligence which menaces life and health. Pennsylvania needs much better protection than is now offered for the streams which are the dependence of its cities and towns for the water supply, and also a better method of collecting and tabulating vital statistics for the information of the public as to what causes are operative to swell the death rate. What effort there now is to look after the health of communities is hampered by the lack of anything like coördination, with the result that in too many instances the dangers escaped by one community are unloaded upon another. The various units of local sanitary administration work at cross purposes and with little or no regard to the welfare of the Commonwealth. This will not be corrected merely by the passage of bills designed to supply the deficiencies of the system. A great deal more depends upon the character of the citizens chosen to organize and manage the work of the State Board of Health and upon the measure of support given them by the Governor. We agree with the *Philadelphia Press* that "it is a hideous travesty of the administrative responsibilities of a great Commonwealth that the care of fish and birds, the protection of animals and forests have a larger place in the budget, more comprehensive powers on its statute book, and a more efficient organization than the sanitary care of 7,000,000 human beings." This is strong language, but it is fully warranted by the facts. Pennsylvania has been distinctly negligent in this matter, and it is not to her credit that the ravages of typhoid fever and smallpox have not created a public sentiment strong enough to compel attention at Harrisburg.

Russian Medical Items.—The assistant-professors, prosecutors, clinical assistants, *et al*, of the Women's Medical Institute at St. Petersburg, have forwarded the following resolution to the faculty of the same: "In view of the abnormal conditions surrounding the social and academic life in Russia, and the impossibility of continuing our work quietly and conscientiously, we are hereby compelled to tender our resignations until more favorable conditions are guaranteed us."

The senior (fifth year) students of the medical department of the Odessa University, have unanimously refused to present themselves for the State (licentiate) examinations, as a protest against the high-handed methods of the irresponsible bureaucracy, and as voicing their sympathy with the general current of the reform movement that is rapidly spreading all over the land. A similar action was adopted by the students of the Charkow University.

At a meeting of the Society of Normal and Pathological Psychology, presided over by Prof. Bechterew, resolutions were adopted expressing sympathy with the scientists who protested against the cruelties of the government in quelling the student disturbances, it being also decided to disband the society temporarily as a demonstrative protest against the government. The meeting of the Pirogoff Medical Society which took place at Moscow March 21 (old style) will certainly be remembered as one of momentous importance in the history of the New Russia. The Minister of the Interior was informed a month ahead of the proposed gathering, for which permission was then sought, the principal object under discussion being the ways and means whereby to check the possible spread of that dread calamity, the cholera; at the present troublous state of affairs all over the country the epidemic threatens to assume truly horrible proportions. At the eleventh hour, when over a thousand delegates representing numerous provincial sanitary bodies were gathered, this number growing larger by the unceasing arrival of others, the Minister withdrew his permission. But it was too late, the convention opened its deliberations "unofficially," its first act, by way of a demonstrative protest, being the election to the chairmanship of of two physicians, Yelpatievsky and Chinokayeff, who only recently returned from exile, whither they were banished for entertaining "unreliable" political views. Unable to prohibit the gathering the Minister of the Interior could not but permit it. In the course of the discussions, views hardly complimentary to the present régime were openly exchanged (a procedure unheard of in Russia), and resolutions of a most outspoken character were adopted, the gist of which was to the effect that instead of assisting the physicians in intelligently combating the spread of the calamity the government systematically foster suspicion and hatred on the peasants toward the physicians; this hatred in very tangibly expressed in the so-called cholera riots so that the very lives of the physician or nurse who devotes himself to saving the poor wretches is never safe.

The "divide et impera" policy of the autocracy might suffer considerably if a bond of sympathy were to spring up between the "intellectuals" and the common people.

Status of the "Osteopathic," "Optometry," "Anti-Vivisection" and "Medical" Bills Pending in Illinois.—The State Board of Health through its President and Secretary, has opposed and still opposes each and every one of these bills. The majority are inimical to the rights and privileges of the licensed physicians and surgeons of Illinois, who have complied with the laws of the State, and it would appear that the public health, safety and welfare demand the non-enactment of several. It is respectfully recommended that the members of the medical profession express their views in writing to their representatives, addressing them at Springfield.

The bills opposed contain the following features: (*a*) Gives to osteopaths practically all rights and privileges of licensed physicians and surgeons; permits them to practice surgery, obstetrics, and to prescribe certain drugs and medicines. (*b*) Licenses persons to measure vision and fit lenses by any means other than the use of drugs; licenses without examination those now engaged in this practice, the State certifying, by inference, to their qualifications. The State Board of Health questions the constitutionality of this bill. (*c*) Restricts operations upon human beings and experiments upon animals by many technicalities seemingly impossible to overcome. Certain sections semilar to those in Gallinger Bill, defeated in U. S. Senate in 1890. (*d*) Places an osteopath on the State Board of Health, reduces representation of the regular school on the Board from five to three members; provides that no person financially interested in a medical college or university having a medical department shall serve on Board. (*e*) Reorganizes State Board of Health, takes from Board right to determine "good standing" of medical colleges; gives osteopaths right to prescribe certain drugs and medicines and to practise surgery and obstetrics; gives no osteopaths now practising physicians' certificates without examination. (*f*) Amends medical practice act; licenses graduates of legally chartered medical colleges without examination and makes the law apply only to those who treat by the administration of drugs or by the use of surgical instruments. (*g*) Practically the same as House Bill 228. [See

note] (*d*). (*h*) Repeals medical practice act; regulates medical and osteopathic practice; takes from State Board of Health the right to determine "good standing" of medical colleges; provides for an osteopath on the Board; licenses graduates of legally chartered medical colleges without examination; permits osteopaths to take the regular examination of the Board, the examination in materia medica to be conducted by the osteopathic member of the Board; gives osteopaths the right to practice surgery and the right to prescribe certain drugs; grants physicians' certificates without examination to osteopaths now practising; makes the section of the act concerning itinerant vending of drugs not to apply to the sale of "standard proprietary preparations."

Nebraska State Medical Association.—The thirty-seventh annual meeting will be held in Paddock Hotel, Beatrice, Tuesday, Wednesday and Thursday, May 2, 3 and 4, 1905. The following program has been arranged: "Oration on Medicine—He's Only a Doctor," by Dr. P. E. Plumb, of Gothenburg; "Oration on Surgery—Surgical Enthusiasm. Is it Declining?" by Dr. S. C. Beede, of David City; "Oration on Obstetrics and Gynecology—Ideals," by Dr. M. L. Hildreth, of Lyons; "A Plea for Surgical Intervention in Suspected Malignant Disease of the Abdominal Caviey," by Dr. B. B. Davis, of Omaha; "Proper Management of Labor by the Country Doctor," by Dr. A. E. Cook, of Randolph; "Obstetric Forceps," by Dr. Andrew B. Somers, of Omaha; "The Choice of Operations for the Restoration of the Pelvic Floor," by Dr. J. W. Bullard, of Pawnee City; "Chronic Metritis," by Dr. Edwin Brown, of Omaha; "Conservatism in Gynecology," by Dr. A. B. Anderson, of Pawnee City; "Chronic Salpingitis," by Dr. Frank Park, of Omaha; "Symposium on Extra-Uterine Pregnancy," (*a*) Clinical Picture and Treatment, by Dr. W. O. Henry, of Omaha; (*b*) Histology and Pathology, by Dr. E. C. Henry, of Omaha; "A Simple Method of Hystero-Myomectomy by the Aid of a Dagger Clamp," by Dr. H. M. Hepperlen, of Beatrice; "President's Address," by Dr. R. C. McDonald, of Fremont; "Suprapubic Prostatectomy," by Dr. A. I. McKinnon, of Lincoln; "The Abortive Type of Typhoid Fever," by Dr. Wm. R. Young, of Ansley; "Pain in the Upper Abdomen—What it may Mean," by Dr. J. E. Summers, Jr., of Omaha; "Something New in Antiseptic Procedure," by Dr. Wm. B. Ely, of University Place; "Some Incomplete and Some Wrong Diagnosis, by Dr. George Haslam, of Fremont; "The Diagnosis of Cancer of the Stomach," by Dr. H. L. Akin, of Omaha; "The Laryngeal Affections of Singers, by Dr. H. B. Lemere, of Omaha; "Smallpox," by Dr. Francis P. Dorsey, of Hartington; "Indications for Operation in Mastoid Disease," by Dr. S. E. Cook, of Lincoln; "Report of Two Cases of Leucemia and Two Cases of Splenic Anemia and their Diagnostic Differentiation," by Dr. W. O. Bridges, of Omaha; "Intestinal Obstruction," by Dr. R. D. Mason, of Omaha; "Nephritis—Etiology and Treatment," by Dr. John Mills Mayhew, of Lincoln; "Actinomycosis of the Lungs," by Dr. E. Fletcher Ingals, of Chicago; "Trypanosomes and Disease, with Demonstration of Nebraska Specimens," by Prof. Henry B. Ward, of State University; "Cysts of the Anterior Mediastinum," by Dr. A. P. Condon, of Omaha; "The Diagnosis of Hemorrhage from the Alimentary Tract, with Cases," by Dr. W. F. Milroy, of Omaha; "Variation from Routine Necessary in Some Operations for Inguinal Hernia," by Dr. John Prentiss Lord, of Omaha; "Symposium on Diabetes Mellitus," (*a*) Physio-Pathological Consideration, by Dr. I. N. Pickett, of Odell; (*b*) General and Special Etiology, by Dr. P. L. Gillispie, of Wymore; (*c*) Diagnosis—With Special Reference to the Preglycosuric Stage, by Dr. George H. Brash, of Beatrice; (*d*) Ocular Complications, by Dr. John I. McGirr, of Beatrice; (*e*) Nervous Phenomena," by Dr. C. P. Fall, of Beatrice; (*f*) The Precautions a Surgeon Should Take for Operating on Diabetic Subjects, by Dr. H. M. Hepperlen, of Beatrice; (*g*) Diabetic Treatment, by Dr. C. A. Love, of Beatrice; (*h*) Medical Treatment, by Dr. B. M. Deardorf, of Clatonia; "Some Notes on Mastoiditis with Spontaneous Perforation in the Digastric Fossa," by Dr. F. S. Owen, of Omaha; "Endocarditis—Its Etiology and Symptomatology," by Dr. C. W. M. Poynter, of Lincoln; "Adhesions About the Sigmoid Flexure," by Dr. Harry H. Everett, of Lincoln; "The Pharmacology of Antipyretics," by Dr. A. L. Muirhead, of Omaha; "Upon the Treatment of the Individual Case in Appendicitis," by Dr. C. C. Allison, of Omaha; "Diagnosis of Bright's Disease," by Dr. L. B. Pilsbury, of Lincoln; "The Symptoms Which Demand Operative Interference in Intestinal Obstruction," by Dr. Chas. O'Neil Rich, of Omaha; "Chorea—Its Etiology and Treatment," by Dr. H. M. McClanahan, of Omaha; "General Surgery," by Dr. H. C. Moore, of Omaha; "Too Much Medicine," by Dr. J. Lue Sutherland, of Grand Island; "Foreign Bodies in the Esophagus, and Foreign Bodies in the Larnyx and Trachea," by Dr. Warwick M. Cowgill, of Lincoln; "The Diagnosis of Gastric Ulcer," by Dr. H. J. Lehnhoff, of Lincoln; "Plaster Paris in the Treatment of Surgical and Traumatic Wounds of the Soft Parts," by Dr. H. Winnett Orr, of Lincoln; "Diseases of the Accessory Sinuses of Nose," by Dr. D. C. Bryant, of Omaha; "When and How to Operate for Prostatic Hypertrophy," by Dr. A. C. Stokes, of Omaha.

Association of American Physicians.—The twentieth annual meeting will be held in the New Willard Hotel, Washington, D. C., on May 16 and 17, 1905. Here is the interesting program: "President's Address," by Dr. E. L. Trudeau, of Saranac Lake; "A Study of the Fear of Cats and the Power to Recognize Their presence Unseen and Unheard," by S. Weir Mitchell, of Philadelphia; "Intrapleural Lipoma," by Dr. R. H. Fitz, of Boston; "Chylous and Chyliform Effusions into the Serous Sacs, with a Case," by Dr. J. C. Wilson, of Philadelphia; "Rhythmic Lateral Displacement of the Heart as a Sign of Unilateral Pleuritic Exudate," by Dr. Chas. L. Greene, of St. Paul; "Gonorrheal Septicemia and Endocarditis," by Dr. W. S. Thayer, of Baltimore; "Fever in Chronic Endocarditis," by Dr. J. S. Thacher, of New York; "Sphygmograms from Two Cases of Bradycardia," by Dr. George Dock, of Ann Arbor; "Clinical Notes on Opinm in Myocarditis," by Dr. J. H. Musser, of Philadelphia; "Some Phases of the Neurotic Heart," by Dr. Beverley Robinson, of New York; "The Frequency and Etiology of Acute Non-Tuberculous Pneumonia in a General Hospital," by Wm. T. Howard, Jr., of Cleveland; "Report of a Case of Pneumococcus Sepsis," by Dr. J. S. Thacher, of New York; "A Report of Six Cases of Perforation in Typhoid Fever in Children," by Dr. J. P. Crozer Griffith, of Philadelphia; "Umbilical Hernia as a Little Recognized Source of Abdominal Pain," by Dr. D. D. Stewart, of Philadelphia; "Stone in the Kidney and Certain Conditions Simulating it," by Dr. D. D. Stewart, of Philadelphia; "A Study of Abdominal Tumors," by Dr. R. C. Cabot, of Boston; "Hematemesis from Gastric Ulcer; notes on 200 cases," by Dr. W. G. Thompson, of New York; "Relations of Certain Stomach Disorders to Diabetes Mellitus," by Dr. John S. Sawyer, of Cleveland; "Clinical Notes on the Use of Nux Vomica, especially in Certain Forms

of Hyperchlorhydria," by Dr. J. H. Musser, of Philadelphia; Election of Members; "Considerations on Proteid Diet with Especial Reference to the Distribution of Amide-Nitrogen, Diamino Nitrogen and Monamino-Nitrogen Therein," by Dr. L. F. Barker and B. A. Cohoe, of Chicago; "The Chloride Exchanges in Three Cases of Chronic Nephritis with Reference to the Dechloridation Treatment," by Dr. A. O. J. Kelly and Chas. A. Fife, of Philadelphia; "Chloride Retention in Nephritis," by Dr. Joseph L. Miller, of Chicago; "On the Toxicity of Bile," by Drs. S. J. Meltzer and W. Salant, of New York; "On the Nature and Origin of Cholemia and Uremia," by Dr. S. J. Meltzer, of New York; "Xanthelasma and Chronic Icterus," by Dr. T. B. Futcher, of Baltimore; "A Report of a Case of Lymphatic Leucemia in a Child of Three Years," by Drs. John Lovett Morse and Harry C. Low, of Boston; "Observations on Metabolism in a Case of Acute Leucemia and a Case of Purpura Hemorrhagica," by Dr. D. L. Edsall, of Philadelphia; "The Influence of the X-ray on Metabolism in Leucemia," by Drs. J. H. Musser and D. L. Edsall, of Philadelphia; "Chronic Acetanilid Poisoning," by Dr. D. D. Stewart, of Philadelphia; "Report of a Case of Acromegaly," by Dr. Chas. L. Greene, of St. Paul; "Further Observation on the Relation of Lesions of the Gasserian and Posterior Root Ganglia to Herpes Occurring in Pneumonia and Cerebrospinal Meningitis," by Dr. Wm. T. Howard, Jr., of Cleveland; "A Brief Report on Recent Researches in the Writer's Laboratory on Bacterial Toxins and Immunity," by Dr. V. C. Vaughan, of Ann Arbor; "The Nature of Cirrhosis of the Liver," by Dr. A. O. J. Kelly, of Philadelphia; "A Note with a Demonstration upon Experimental Pancreatitis," by Dr. Simon Flexner, of New York; "Experimental Arterio-Sclerosis with Demonstration of Specimens, by Drs. Richard M. Pearce and E. Stanton, of Albany; "Phlebo-Sclerosis," by Dr. C. F. Martin, of Montreal; "A Lantern-slide Demonstration on the Stages of Calcareous Degeneration," by Drs. J. George Adami and Oskar Klotz, of Montreal; Election of Officers and Concluding Business.

To Enlarge Willard Parker Hospital.—Plans have been filed with the Building Bureau for the enlargement and remodeling of the main building of the Willard Parker Hospital, in Sixteenth Street, east of Avenue C. A three-story extension, 38x78, is to be added on the front and rear.

OBITUARY.

Dr. William B. Beach, a son of the late Rev. Charles Beach, died at Long Branch, N. J., last Friday, of paralysis.

Dr. William B. Ulrich, president of the Pennsylvania State Medical Society, died last Wednesday at Chester, Pa., aged eighty-three years. Dr. Ulrich was the oldest practising physician in his section.

Dr. Hiram Barber died at his home at Ossining last week. He was eighty-five years of age. His father served in the War of 1812 and his grandfather served in the Revolution. He had been a member of the legislature, surgeon to the New York City Park Department, and physician at Sing Sing Prison.

Dr. Patrick J. Lynch died last week in New York. He was born in Ireland in 1828 and came to the United States fifty-five years ago. He was graduated from the University of the City of New York in 1857, and was chief of clinic to Dr. Valentine Mott for seven years. Dr. Lynch was a member of the American and State Medical Associations, the Academy of Medicine, the County Medical Society, the Physician's Mutual Aid Association and Medical Union.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, April 15.

PROPOSED FEDERATION OF LONDON MEDICAL SOCIETIES—CANCER CURES.

For nearly a century attempts have from time to time been made to bring about a combination of the London Medical Societies. Of the existing Societies the Medical, which dates from 1773, is the oldest. The most important, however, is the Royal Medical and Chirurgical Society, which will celebrate the first centenary of its foundation in May. This Society has a fine library and a handsome house in a central position. The Medical Society is, however, much richer, and the "Medico-Chi." is anxious to contract an alliance for the reason that impels British dukes to look for brides on the other side of the Atlantic. Hitherto the efforts at amalgamation have come to nothing, but now it seems to be considered that the question, as Gladstone would have said, has come within the sphere of practical politics. The proposal comes from the Royal Medical and Surgical Society, which of late years—mainly owing, to the multiplication of Societies, pathological neurological, clinical and what not—has lost a good deal of the Olympian character it once arrogated to itself. Men engaged in some special line of work naturally prefer to take their ideas and results to a society competent to appreciate them. Hence the "Medico-Chi." is gradually being left to the enjoyment of its own dignity while the living issues of medical science are discussed elsewhere. At a meeting held on April 10, Sir William Church, President of the Royal College of Physicians, of London, proposed that a new central body, to be called the Royal Society of Medicine, should be established and that all the existing societies should be regarded as subdivisions thereof. The proposal was received with unanimous approval and it was decided to appoint a committee consisting of two representatives from the Royal Medical and Chirurgical with the Medical Societies, together with one representative from each of the medical societies willing to consider the question of amalgamation and the Presidents of the Royal Colleges. This committee is to study the question in all its bearings and to submit a scheme of union to the various Societies for their consideration. It is not proposed to include local societies in the amalgamated body. The Societies which consent to join will to a large extent, retain their autonomy and their special character. The proposal has many advantages. Men will be able, for a comparatively small subscription, to enjoy the benefits of membership of Societies devoted to every branch of medical science, while workers in different fields will be kept in organic relation to general medicine and will thus be prevented from drifting apart as its various branches become more and more specialized. The difficulty in the way is almost wholly financial. If the Medical Society, the only one besides the "Medico-Chi." itself which has any property worth mentioning, stands out, there is no hope of a "combine" being effected. Apart from its antiquity and its property the Medical Society has no particular place in the universal frame of medical things; but naturally enough it is jealous of its independence and may not care to sink its individuality in a new body. How little inclined it is to allow itself to be merged in any other society is shown by its history. In the middle of the last century its membership seemed to be on the way to become a vanishing quantity, but it retrieved its

fortunes by a timely union with the Westminster Medical Society, which at that time was in a very flourishing state. It was intended that the union should be a junction of names as well as of forces. What actually happened might be described in the pathetic lines about the cassowary on the plains of Timbuctoo which swallowed the missionary "Bible, bands and hymn-book too." The smaller body played the part of the voracious bird, and simply absorbed the larger whose very name is now forgotten. It will not be able to repeat this performance in the case of the Royal Medical and Chirurgical Society and it is scarcely likely that it will itself submit to the process of phagocytosis. The story reminds one of the story of the two boa constrictors operating on a goat from opposite ends; it will be interesting to see how the struggle ends. The name of Royal Society of Medicine suggested for the new body does not strike one as a happy one. The Royal Society might fairly object to a title that would be sure to cause confusion. Doubtless a good many members of the Royal Society of Medicine might not object to the possibility of a misconception which would lead the public to regard them as decorated with what is looked upon here as the "Blue Ribbon" of science. An Academy of Medicine is what is wanted. It might consist of two grades of members, immortals and plain mortals, who might respectively be designated Fellows and ordinary Members or Associates. The latter would be allowed to join in the usual way. The former would be elected in recognition of valuable work done or of general eminence, and collectively would correspond to the Paris Académie de Médécine. These Fellows would form a purely scientific body fully representative of the highest knowledge, achievements and aspirations of the medical profession. To them Government would be able to turn for counsel in difficulties of which science alone can supply the solution. They would advise in large matters of policy regarding the public health. As things are, medicine in this country has no corporate voice. The British Medical Association was never accepted as the mouthpiece of scientific opinion and in the sphere of legislation it never had much influence with statesmen as it could not speak in the name of the whole profession. Now, under its new constitution, it has declined to an altogether lower range of feeling and action and concerns itself, in a spirit of parochial pettiness, with such matters as the fees to be paid to medical practitioners called in to help midwives out of difficulties, and the tribulations of club doctors.

M. Doyen paid a brief visit to London last week. He is said to have visited the Cancer Hospital and the Middlesex Hospital. As usual the newspapers have been busy about his doings. He seems to have "devoted an hour of his valuable time" to a representative of the *Daily News*, which is an organ of "anti's" of all sorts and conditions. On his interviewer asking him whether experience was supporting his discovery, M. Doyen is reported to have said: "For absolute proof we must have time. One cannot say in a day that a patient is cured of cancer. But I do claim now that my experience every day is confirming my belief that I have discovered the microbe. So also does the experience of others who are following my practice" Asked whether when the *Micrococcus neoformans* is inoculated into an animal cancer always resulted, he gave the guarded reply: "Tumors always result. These are of two sorts. Some are merely benignant; but others are undoubtedly malignant." He went on to say that the point of difference between him and some of those who have argued against his discovery lay simply in this, that he held malignant tumor to be cancer, and claimed that inoculation with the neoformans produces in animals, not merely benignant tumors, but malignant ones, which are similar to malignant cancer in man.

This lucid statement seems to have satisfied the simple-minded scribe who proceeded to ask about the use of the serum which is the practical outcome of the great discovery. M. Doyen replied that he had now treated about four hundred patients. All of them had certainly obtained relief, and about one hundred had shown marked improvement. Asked as to the permanency of the cure he said it was impossible to say at once that a cancer had been eradicated. Time alone could answer the question. One must wait for five years, and he had been working with the serum only for three or four years. He expressed the fullest conviction that cancer is a microbic disease, and he thinks it transmissible much as consumption is—not more. It is not directly infectious or contagious. But there is certainly danger where cancerous patients are, as, for instance, in the room wherein a patient has died. The microbe lurks in the dust, in the air, the clothes—everywhere, waiting for the conditions in which it can develop. Asked what these conditions are, he replied: "Always a weak state of health, a low condition of the blood, coupled with some spot which has been weakened by the results of a blow or some wound setting up inflammation. Of the actual causes we are still ignorant; but cancer, I think, always starts as a tumor. A blow, not causing much immediate pain, may set up internal inflammation resulting in tumor. If the condition of health be bad, a benignant tumor becomes malignant, and then cancer. The initial inflammation gives the microbe the chance for location, and the condition of health provides it with the opportunity for development, and the disease results." He went on to say that it attacked the poor chiefly because their condition does not enable them to maintain themselves in vigorous health. Underfeeding, bad feeding, dirt, kept them in a low state of health susceptible to disease. M. Doyen does not think that the evidence favors the belief that cancer is hereditary. If it runs in families that is because the different members happen to live in the same suitable conditions, such as the infected house and the manner of life. He admitted, however, that there are many mysteries connected with it which we do not yet understand. The disease is increasing in places owing mostly to poor conditions of life. Apart from that, he does not think that the disease is generally increasing.

M. Doyen adopts ways of making known his scientific views and results which differ from those customary in the medical profession. He might plead in excuse that the Paris Academy of Medicine had refused to grant him a hearing. On the other hand, he has always played to the gallery rather than to the stalls—a figure of speech which has a special appropriateness in view of the theatrical character of his surgical demonstrations. I believe M. Doyen's serum is being tried in the Cancer Hospital here. Certain members of the staff of that institution went to Paris recently to study his methods, and it is understood that his visit to London was made for the purpose of seeing how the treatment is being carried out. Nothing, however, beyond the fact of his visit, has been allowed to transpire; it may be added that the profession will wait for the reports without excitement or impatience. The Cancer Hospital is not regarded as a likely source of important additions to medical science or surgical practice.

OUR PHILIPPINE ISLANDS LETTER.

(From Our Manila Correspondent.)

To the Editor of the Medical News.

Dear Sir: The second annual meeting of the Philippine Islands Medical Association began last evening in the fine, handsome central hall of the new government laboratory building. This association has already done great work in bringing together the best medical minds of the Islands for the study of those diseases which most afflict here and for consultation on all matters relating to the sanitary condition of the country.

Dr. McDill, the president, in a very interesting address, regretted the fact that although every overture had been made to them, the native Filipino physicians had refused to affiliate with the physicians and surgeons who made up their association.

The statement surprised your correspondent and he sought in vain for the reason, the general opinion among the delegates being that no close community of professional interests was likely until a new generation of doctors, speaking the English language and educated in the modern medical schools of Europe and America. According to Dr. McDill there is ample opportunity for the young physician here. And I would call the special attention of some of the hundred thousand or so of doctors which the thousand and one medical schools at home turn out every spring, to Dr. McDill's statement:

"The population of the Islands is about 7,500,000, and statistics show that the total number of licensed physicians is only 360 and 217 of these are in the city of Manila. These figures mean that although in Manila there is one physician to 1,013 inhabitants, in the provinces the proportion is but one to 51,786, or one doctor to each 430 square miles. To supply the medical and sanitary needs of the country two to three thousand native physicians and sanitarians should be educated, if possible, here in the next twenty years."

It will be noted that the doctor uses the word native in speaking of the needed staff of trained medical men. I take it, however, that he and his associates would gladly welcome a very large addition to the number of physicians now in the Islands. And, indeed, from what I can learn, an excellent opportunity offers here to our young graduates for lucrative employment, for the fees as a rule are above the average.

The young American graduate settling here need have no excuse for getting rusty, since now that the new laboratory is opened he will have every facility for special courses of study and experiment.

Dr. McDill rather surprised me in his sturdy optimism as to the general healthfulness of Manila itself. He declared that it "is now a healthy and safe city (in which to live) and when certain public improvements are completed it will be the healthiest . . . city in the Orient." It had been proven, he said, that except for some intestinal disorders, which are being rapidly prevented and cured and a limited amount of epidemic infectious disease, there is nothing unusual in the kind and amount of disease encountered. Doubtless the good doctor knows of what he speaks but surely the wish is father to the thought when he adds this: "We believe that all will agree that by observing a normal and moral life, healthy Americans can live about as long here and enjoy as good health, . . . as we could in the home land."

One is tempted to take issue with the doctor on the use of the word "healthy," it is doubtless quite true that healthy persons will live about as long in the Philippines as in America, that is, so long as he does keep healthy, but it will scarcely be denied that an Anglo-Saxon, an American is very must less likely to *keep* in good health in Manila, in Iloilo, in Penay, in Samar, or in any other of their supposedly salubrious towns or provinces than in any one of thousands of our home cities and towns.

Dr. McDill is very hopeful, and with reason, I should say, as to the eventual stamping out of bubonic plague and cholera in the Islands. He says that, "a few years ago a single case of these diseases in any port would have meant a loss of millions to merchants, but to-day the presence of these diseases scarcely create a ripple of excitement, because the community knows that medical men have these scourges by the throat."

Dr. McDill ended with an earnest appeal for funds either from Insular, Governmental or private sources for a modern civil hospital in Manila. Such a hospital, the writer well knows, is a crying need. But of this I shall treat in a special letter.

Manila, March 2, 1905.

SOCIETY PROCEEDINGS.

JOINT MEETING OF THE CHICAGO NEUROLOGICAL SOCIETY AND THE CHICAGO MEDICAL SOCIETY.

Held March 29, 1905.

The President of the Chicago Neurological Society, Harold N. Moyer, M.D., in the Chair.

SYMPOSIUM ON EXOPHTHALMIC GOITER.

General Considerations.—Dr. L. F. Barker opened the discussion on this symposium. He said the disease has been named after investigators in several countries. Thus in English text-books it is frequently referred to as Graves' disease; in Germany, as Basedow's disease; in Italy, as Flajan's disease. But the syndrome was undoubtedly very well described by Parry earlier than by any of the authors mentioned, and strictly speaking we should, therefore, if we refer to the disease under the name of any one man, call it Parry's disease. The affection has been treated monographically several times. The best monograph on the subject is, he thinks, that of Möbius, published in 1896. There are but few facts known concerning the disease which are not dealt with in his treatise, and the speaker has drawn liberally upon it in the preparation of this review. During the last fifty years knowledge of the disease has increased with great rapidity. Everyone has become familiar with its outspoken forms, and the recognition of more obscure types has been rendered easier. The rarer symptoms of the disease have been carefully investigated; numerous new signs have been discovered; and the significance and frequency of many of the phenomena have been established. While the nature of the affection is not yet wholly clear, great strides have been made toward an understanding of it. The theory that a disturbance of the thyroid gland is responsible for the symptoms of the disease is now the dominant one, but, as will be pointed out later, this view has not met with universal acceptance, and there are some points difficult to reconcile with any of the theories yet propounded. In the treatment of exophthalmic goiter a great deal has been accomplished, really much more than is generally recognized. For the prevalent opinion among physicians and the laity seems to be that the disease is incurable; whereas the literature shows, and the experience of men who have dealt widely with the disease proves, that a good many cases get well. Some

patients apparently recover spontaneously; others, and in considerable numbers, after special treatment, medical or surgical, or both. With regard to the etiology, it is known that the disease occurs nearly five times as frequently in the female as in the male; that it is commonest in early life, and especially in the third decade; that it has a tendency to appear in the so-called neuropathic families; that many cases of the disease may occur in one family; that it often develops after emotional shock or prolonged emotional disturbance; that occasionally it appears as a sequel of some infectious process; and, finally, that, as far as has yet been made out, climatic and terrestrial conditions play no important rôle in its causation, though it would appear that it is rather more common in districts where ordinary goiter is prevalent. The disease has been met with in lower animals, in the dog, in horses and in cattle. Whether it is more frequent now than formerly cannot be definitely stated, but it seems rather strange that so striking a symptom-complex as typical exophthalmic goiter presents should not have been more commonly recorded in the older medical literature.

The Cardinal Symptoms.—As the cardinal symptoms of the disease are usually described we have the tetrad—tachycardia, goiter, exophthalmos, and tremor. In well-marked cases all these symptoms may be present, but in undoubted instances of the disease, one, two or even three of them may be absent. Some have even gone as far as to diagnose the disease in the absence of any one of these four symptoms. As a consideration of the atypical forms is to be discussed by Dr. Mettler, he would say nothing further on this phase of the subject. Aside from the thyroid gland, it is the circulatory system, the nervous system, the eyes and the skin, the functions of which are especially disordered, though there are also evidences of disturbed activity in still other parts of the body which must be referred to. One of the circulatory disturbances, the tachycardia, is usually the first symptom to be manifest. It is rarely, if ever, absent in the disease, and the character of the symptoms affords perhaps more information than that of any other regarding the course of the disease. The heart beats more rapidly, and more powerful than normal, and the patient has a disturbing subjective sense of palpitation. The tachycardia may be paroxysmal at first, but later often becomes continuous. Indeed, tachycardia unrelated to disturbances of digestion or to organic disease should always excite suspicion of the possible existence of Parry's disease. Occasionally murmurs, may be heard over the heart, especially at the base. Angina pectoris is not infrequently encountered. An interesting symptom on the part of the circulatory system is the marked pulsation of peripheral arteries, which may be limited to a group of vessels, most often the carotids; or it may be general; often one set of vessels will pulsate more at one time and another set at another; the throbbing may even be unilateral. In severe cases actual hemorrhages from small vessels may occur. The enlargement of the thyroid, in Parry's disease, is worthy of special consideration, for in the first place the Parry syndrome can appear after an ordinary goiter, though in many instances the goiter develops along with the other symptoms. This fact has led Möbius to divide the cases of Parry's disease into two groups: (1) The primary cases, and (2) the secondary cases. In the primary cases the struma is usually soft, the gland may not be very much enlarged and often the right lobe is more increased in size than the left. Large vessels cover the gland. The carotid pulsation is transmitted by it; a distinct thrill can often be felt on palpation and on listening to the tumor a systolic blow may be heard. Guttmann distinguishes an arterial bruit from a venous bruit, and believes that these sounds, if present, are pathognomonic for the disease. The goiter develops, as a rule, very slowly, but in some cases it grows with great rapidity, attaining a considerable size in a few days, or even within a few hours. It must be remembered that the parenchymatous changes in the gland characteristic of the disease may be present in the absence of goiter, and, further, that the goiter, at any rate in the primary cases, may be largely due to the dilatation of the blood vessels of the gland, for the gland is often markedly collapsible after death. Careful studies of the histological appearances of the gland have been made by Greenfield, Renaut, Brissaud, and others. There is a peculiar hyperplasia of the gland acini. Colloid is usually absent. According to Renaut, the lymph vessels in the central part of the glandular lobules are obliterated, while those at the periphery, the interlobular lymph vessels, are excessively distended. He believes that the absence of colloid is due to its transformation into a substance which he calls thyromucoin. Many of the symptoms of exophthalmic goiter are directly referable to a disturbance of the functions of the nervous system, and it is not surprising that many of the theories of the disease make it neural in origin. The psyche of the individual is rarely normal. Increased irritability is often one of the first signs. I have been much surprised in looking over the literature to observe how frequently cases of exophthalmic goiter have been associated with definite psychoses, with mania, with melancholia, and with other forms of insanity. Even when no definite psychosis exists, it is not uncommon to find patients overcheerful or excessively depressed. Insomnia is a common symptom. Flushings of heat are complained of.

The Nervous Symptoms.—Perhaps the most important nervous symptom is the tremor. It has been carefully studied by P. Marie, and is now regarded as a very constant phenomenon, though it undergoes marked variation in degree and continuousness. The tremor is usually fine and rapid; the rhythmical oscillations number from eight to ten per second. Among other nervous symptoms, tonic spasms, sometimes resembling those of tetany, and epileptiform attacks, may be mentioned. A symptom which is not at all uncommon is marked muscular weakness, which may become so exaggerated as to render the patient bedridden. Actual paralyses are described; Charcot called attention to the paraparesis which may occur, the German writers describe what they call "Basedow paralyses." As a rule, the tendon reflexes are not markedly altered, but they may be increased or diminished. It is a striking fact in pathological anatomy that despite the marked clinical symptoms referable to the nervous system, actual demonstrable lesions are rarely to be met with. It would appear that the poison in the disease, in acting upon the neural structures, is able to destroy functions without leaving behind indications of its action discoverable by our present histological methods.

The Eye Symptoms.—The eye symptoms of the disease are among the most characteristic. The ex-

ophthalmos appears to be due chiefly to the dilatation of the blood vessels of the orbit, though in long-standing cases an increase of the adipose tissue may be partly responsible therefor. The symptom known by the name of von Graefe is very often present, though not constantly. It may easily be overlooked unless tested for carefully, and he hoped Dr. Gradle would describe in detail the best method of eliciting the sign. Stellwag's symptom, the widened lid slit and the infrequent winking, is one of the earliest and most constant signs of the disease, and together with the exophthalmos causes the goggle eye. Möbius' symptom, insufficiency of convergence, best brought out by telling the patient first to look at the ceiling and then at the end of his nose, is an important accessory sign, though not pathognomonic. With the insufficiency there is no diplopia, though the patient may experience a feeling of tension. Actual eye-muscle paralyses are rare, but do occur, and may be associated with paralysis in the domain of the fifth or the seventh cerebral nerve. Tremor of the eyeball, tremor of the eyelid (Rosenbach's symptom), excessive lacrimation, are among the other occasional eye symptoms. He mentioned these only, as Dr. Gradle was to take up the ophthalmological side of the clinical picture in detail. On the part of the skin, increased sweating is the most important symptom. It is usually general, though it may be localized. The increased moisture due to it appears to be responsible for the lessened resistance of the skin to the passage of the electric current (Vigoroux's symptom). The skin may be pigmented, sometimes as markedly as in Addison's disease. There may be circumscribed edema; urticaria factitia is not uncommon. Occasionally marked trophic disturbances, including falling out of the hair and scleroderma, may be met with, especially where exophthalmic goiter is complicated by myxedema. The symptoms referable to other parts of the body may be dismissed in a few words. Diarrhea is not infrequently a troublesome symptom. According to the researches of F. Müller, metabolism must be profoundly altered, for in spite of the bulimia usually present in the disease, the patients emaciate rapidly and the nitrogen output exceeds the intake. Transient fever is very often present, even in the mild cases, but a high temperature, or one lasting over a long period, is seldom met with except in the severer forms of the malady. Gowers has called attention to the enlargement of the lymphatic glands, which may be present, and Markham asserts that a persistent thymus may nearly always be found at autopsy. A sign contributed by an American clinician, the so-called Bryson's sign, consists in the slight expansion of the thorax on inspiration. It has been commented upon, among others, by Patrick. Four principal theories of the disease have been put forward: (1) That it is due to disease of the sympathetic nervous system; (2) that the seat of the malady is in the medulla oblongata; (3) that it is primarily a disease of the thyroid gland, and (4) that it is a neurosis. The tachycardia, the throbbing and dilatation of the blood vessels, the vasomotor and secretory disturbances generally, and the exophthalmos naturally have directed the attention of investigators toward the sympathetic nervous system. The fact that same of the symptoms point to paralysis of the sympathetic, and others to irritation, need not necessarily militate against the view, since it is common in neural lesions to meet with such mixed symptoms. That the medulla oblongata is the seat of the disease is a theory founded on very few objective facts. There have, it is true, been found occasionally at autopsy slight lesions in the medulla oblongata, such as ecchymoses in the floor of the fourth ventricle, partial agenesis or atrophy of the tractus solitarius, but nothing of a pathologico-anatomical nature has ever been observed, which could satisfactorily account for Parry's syndrome. It was Filehne's experiment, he takes it, upon the corpus retiforme which lent most support to the bulbar theory. He produced some of the symptoms of the disease, and his experiments have been more or less confirmed by other observers. The work should undoubtedly be further followed up. The well-known fact that in strong emotional excitement, for example, in horror, the eyes protrude, and are fixed upon the horrible object, the heart beats fast, the individuals breaks out into a sweet, and sometimes even the thyroid is temporarily enlarged, has been used to favor the bulbar hypothesis, it being assumed that there must be some center in the medulla oblongata, stimulation of which calls forth the combination of symptoms mentioned.

The dominant theory at the present time is that in which a primary disease of the thyroid gland is made responsible for the affection. Since 1873, when Gull described myxedema, and in 1878, when Ord showed that the thyroid is atrophied in that disease, progress concerning the relation of the thyroid gland to the rest of the organism has been making rapidly. In 1882 Reverdin demonstrated that on excision of the thyroid in animals a myxedema operativum develops, the condition subsequently designated by Kocher as cachexia strumapriva. Later Murray discovered that the feeding of thyroid substance to myxedematous patients or to animals with cachexia strumapriva would cause the symptoms to vanish, whereupon the belief seemed well founded that myxedema is due to diminution or loss of activity of the thyroid gland. Now histological examination and macroscopic observation have shown that in exophthalmic goiter we have to deal, as a rule, not with an atrophy, but with an hypertrophy of the thyroid gland, and in 1886 Möbius advanced the hypothesis that Basedow's disease is the result of a pathologically increased activity of the thyroid. He suggested that in exophthalmic goiter we have to deal with a primary disease of the thyroid, as a result of which a secondary intoxication of the rest of the body occurs, giving rise to the other symptoms. He urged that since the disease is a form of goiter, it is easy to understand the part played by heredity, the predominance among females, the influence of disease of the sexual organs, its occurrence along the other forms of goiter, the occasional transition to myxedema and the success of operative treatment. It has for some time been asserted that the feeding of thyroid glands in excess may produce some of the symptoms of exophthalmic goiter, though not all of them. Experiments connected therewith have, it is true, caused much discussion. Buschan declared that he took a large number of thyroid tablets with toxic effect, and Gragor reports prolonged feeding of idiot children with thyroid substance without the production of Basedow's symptoms. On the other hand, Notthafft records a case where actual exophthalmic goiter developed after the ingestion of 1,000 tablets, and Oppenheim tells of an instance in which a woman receiving nine tablets per day to combat obesity, became the victim of Basedow's disease. The fact

that exophthalmic goiter is occasionally associated with myxedema would seem to contradict Möbius' hypothesis, for according to his first conception of the disease myxedema and exophthalmic goiter are the very antithesis of one another, the former being due to an atrophy of the gland, with loss of function; the latter to an hypertrophy of the gland with increase of function. Möbius, however, does not regard the simultaneous occurrence of the two diseases as inconsonant with his theory since, as he now conceives of exophthalmic goiter, there is along with the early hypertrophy and hyperthyroidization a perversion of function, the so-called dysthyrosis. This could easily go over in late stages of the disease into athyrea.

Modern Therapeutic Measures.—Modern therapeutic measures have been largely based upon the thyroid theory and the results of therapeusis have been adduced in support of it. There is no gainsaying the fact that the results of partial strumectomy indicate that the successful removal of a portion of the thyroid gland can lead to pure or to definite amelioration of the condition. The statistics of Heydenreich, Starr, Rembach-Mikulicz and Kocher are very interesting and convincing. Again, the reports of the French surgeons, especially those of Chipault and Jonnesco, who resect the sympathetic on one or both sides in order to affect the thyroid secretion are very suggestive. The treatment by an antithyroid serum appears to have given in some cases remarkable results. On the theory that the thyroid secretion normally neutralizes certain general metabolic poisons in the body, Möbius and others conceived of treating cases of exophthalmic goiter in which there is presumably an excess of thyroid secretion in the body, by introducing subcutaneously or by the mouth the serum of thyroidectomized animals. It was hoped that the non-neutralized general metabolic poisons of such animals would nullify the toxic effect of the excessive thyroid secretion. Merck's antithyroidin, Burghardt and Blumenthal's "rodagen," Hallion and Varion's glycerin extracts of the blood serum, Vallet and Enriquez's serum, and Lanz's milk of thyroidectomized goats—all are administered on this principle. The theory that exophthalmic goiter is primarily a neurosis, first championed by Charcot and his pupils, still has supporters among the ablest men of the profession. A survey of the whole subject makes the speaker personally unwilling for the present to deny it. The history of the affection, its etiology, its complications, the spontaneous cures which occur, the remarkable influence at times of suggestion, all make one think of a neurosis. Undoubtedly, the function of the thyroid is gravely altered in the disease, but those who hold to the neurosis theory look upon the thyroid change as secondary to a primary nervous disease. But such an assumption is far from satisfying, for one should have then to seek the cause of the neurosis. The fact is the pathogenesis of exophthalmic goiter is still wrapped in mystery.

Treatment.—As to treatment, experience has shown the great importance of general measures; complete rest for a time, fresh air, careful diet, mild balneotherapy, all are useful. He personally favors rest, isolation and systematic psychotherapy as a routine treatment. In cases which do not respond to this or to antithyroid therapy, operation may be considered, but if it is to be done, it should be undertaken before marked cachexia develops, and before the heart is too seriously diseased. Before any safe conclusions can be drawn regarding any form of treatment, a large number of cases should be observed over long periods. Results so favorable as to be startling have been obtained from the most diverse forms of treatment, even from feeding thyroid as well as from antithyroid medication.

The Larvated Forms of Exophthalmic Goiter.—Dr. L. Harrison Mettler, in his paper on this subject, stated that to-day, as in the days of Flint and Trousseau, there are those who find exophthalmic goiter to be a rare affection, while there are others who regard it as a common trouble. The definition of exophthalmic goiter is still subject to modification. A tabulation of its so-called symptoms shows upward of 75 clinical phenomena. In order to get at something definite, the author separated these clinical phenomena into (*a*) typical symptoms; (*b*) doubtful symptoms; (*c*) mere complications and associations. The definition of an atypical case of Graves' disease must rest upon that of a typical case; and, moreover, however atypical the case may be, it still must be recognized as a case of the disease and not rest under a mere suspicion. Here is where the difficulty begins in the diagnosis of exophthalmic goiter. Anybody can diagnose a frank, complete, well-developed typical case; but not always can an obscure, masked, incomplete, atypical case be recognized. The former cases are rare, possess a comparatively bad prognosis, and are not very encouraging from the therapeutic standpoint. The latter cases are much more common than are usually supposed, enjoy a comparatively favorable prognosis, and are highly amenable to treatment. Hence the latter cases should receive the closest study on the part of the practitioner. It is agreed pretty generally now that a typical case of Graves' disease must reveal the classical triad of symptoms—tachycardia, struma, and exophthalmos. When combined or single, these symptoms will answer for the making of the diagnosis, if they are sufficiently pronounced, for their characteristics are such in this disease that they are not likely to be mistaken for similar phenomena in other diseases. The same may be said of a fourth symptom—the tremor, but with less positiveness. These are the four cardinal or typical symptoms of Graves' disease. Without one or more of them, exophthalmic goiter cannot be diagnosed, no matter what may be the number of the other innumerable symptoms, associated events, or complications. There is a large class of cases, the formes frustes, so much studied by the French authors, in which tachycardia with general nervousness, tremor, and possibly slight evanescent struma or exophthalmos occur. The heart irregularity comes on suddenly after a severe strain or sudden shock, mostly in a woman with hysterical tendencies, or with a neuropathic ancestry. It exhibits the typical traits of the Basedow tachycardia, such as the persistent elevation of the pulse beat, the peculiar thrill. With it is a general nervousness and possibly a number of symptoms, such as a mild psychosis, hyperidrosis, vertigo, aboulia, weakness, and even some general emaciation. These cases are not infrequently mistaken for simple neurasthenia, tuberculosis, and other affections. They are undoubtedly instances of the disease, but are masked and ill-defined. If they get well, with or without treatment, they remain as examples of the larvated forms; if they go on and in months or years ultimately develop all of the cardinal signs, they enter the class of typical but delayed cases. Their etiology

is obscure; their symptomatology includes any of the more or less indefinite manifestations commonly recognized in neurasthenic and hysterical states plus one of the cardinal symptoms of the disease, which cardinal symptom is usually the characteristic tachycardia; their prognosis is uncertain, though generally it is good. Their course is brief and intermittent; and their treatment is simple and highly satisfactory. Caution is necessary in regard to hastily attributing the recovery of these cases to any specific mode of treatment, for as they so often recover with no other treatment but physical rest and mental quietude, any hasty conclusion as to the efficacy of this or that medicament may be the result of a mere *post hoc* reasoning.

Ocular Symptoms of Graves' Disease.—Dr. Henry Gradle discussed this phase of the subject, saying that in well-marked Graves' disease the patient has a wild, staring look, amounting to even an expression of terror. This is caused by protrusion of the eyeballs together with retraction of the upper eyelid, whereby some of the sclera is exposed to view above the cornea. The widening of the lid aperture is peculiar to this disease, and does not accompany protrusion of the eyeball from other causes. The exophthalmos varies in degree. It may be so pronounced that the lids cannot be closed. Even partial forward dislocation of the eyeball has been seen on attempting forcible closure of the lids. On the other hand, the exophthalmos may be inconspicuous or not alike in the two eyes. One-sided exophthalmos is not excessively rare. Indeed, the diagnosis of Graves' disease is occasionally certain, even without exophthalmos, or the latter may develop after the other cardinal symptoms have existed for a while. Conversely, protrusion of the eyes or even of one eye only, when accompanied by the characteristic retraction of the upper lid justifies the diagnosis of incipient or incomplete Graves' disease, even though goiter and heart symptoms be absent. The retraction of the upper lid exposing the sclera to an abnormal extent is perhaps more characteristic of Graves' disease than mere protrusion of the eye. It is less often absent than the exophthalmos, and, like the latter, it is occasionally, though rarely, one-sided. In rare instances it is present without exophthalmos. At times the lower lid, too, seems slightly retracted. The retraction of the eyelid is often called Stellwag's sign, but not properly so, for it has been described previously. Stellwag really was the first to call attention to the infrequency of winking movements of the lids in this disease. The exposure of the sclera is exaggerated when the patient looks downward. In the normal person the downward motion of the eye is accompanied by dropping of the upper lid, so that nothing above the upper corneascleral junction is exposed to view. Von Graefe pointed out that in most instances of Basedow's disease the upper lid does not follow the downward motion of the eye, but lags behind, and hence looking down intensifies the strange expression of the patient. Von Graefe's symptom is not constant. Pigmentation of the skin, resembling the bronze color of Addison's disease, have been noted especially by Drummond, on various areas of the body and also around the eyes. Jellinek has lately again referred to the diffuse brown coloring of the skin of the eyelids, the upper more than the lower, as an early, though not constant and sometimes evanescent, symptom in exophthalmic goiter. Möbius has observed insufficiency of the converging power of the eyes as a fairly frequent occurrence in Graves' disease. On following an object approaching the face, one eye will cease converging and will deviate outward when the object is within some five to eight inches, instead of the normal near other post-mortem records the exophthalmos was point of converging of about three inches. The patient may, in consequence, complain of fatigue of the eyes when doing near work. Pulsation of the arteries of the retina has been described by Becker as common in this disease. Other observers have not seen this pulsation as often as Becker. The protrusion of the eyeball is partly due to increased vascularity of the orbit, as it always diminishes after death. In some autopsies the eyeballs, prominent in life, were even found receded to normal position, and no anomalies were observed in the orbit. In explained by the increased amount of fat found within the orbit. The ocular muscles were infiltrated with fat and the optic nerves elongated. The retraction of the upper lid can be imitated by the action of the orbital muscle of Müller under the influence of the stimulated cervical sympathetic nerve. In man, its converse, drooping of the lid, is observed when the sympthetic has been paralyzed by any lesion. Yet in an autopsy of Drummond's, no Müller muscle could be found at all on dissecting the orbit. When recovery occurs in this disease, either spontaneously or under treatment, the eye symptoms can disappear completely. Some instances have been observed, however, in which a slight degree of exophthalmos existed after apparent recovery from the other manifestations of the disease. If the disease continues without improvement, there is no reason to fear any eye complications or sequels except danger to the cornea in relatively rare instances. This relatively favorable prognosis was particularly emphasized at a discussion on Graves' disease before the Ophthalmological Society of the United Kingdom, in May, 1886, in which probably the largest collected experiences of the world were brought out. A few exceptional cases in which optic neuritis, optic atrophy, or ocular palsies have been observed must be regarded as coincidences of separate lesions in neuropathic subjects. When the gaping lids afford insufficient protection to the exposed cornea, ulceration of the latter may take place. This does not seem to be a frequent occurrence, especially in recent times. Personally, the author has seen one instance of it which proved manageable. It was mentioned oftener in the earlier German literature, and seems to have been observed most frequently in the case of elderly men, in whom the entire prognosis is more serious than in women or in general in younger people. It can be guarded against or made to heal when not too far progressed by a protective bandage or operative closure of the gaping lid aperture. There is a single case on record by Dor, of the occurrence of conical cornea in a patient with Graves' disease. The causative relation of the latter to the stretching and deformity of the cornea was suggested to Dor by the unusual improvement of the keratoconus in both eyes, only one of which had been operated upon, when the patient recovered from the goiter under the administration of thymus. It has been the author's fortune to have seen recently a similar coincidence of these two obscure conditions—exophthalmic goiter and conical cornea.

The Serum Treatment of Exophthalmic Goiter.—Dr. Harold N. Moyer said that until the last few

years the obscurity in which we labored in regard to the etiology and pathological changes responsible for the symptom-complex of Graves' disease precluded all possibility of adopting any rational method of treatment for this affection. Digitalis, strychnine, belladonna, the bromides, rest cure, massage, electricity, and the numerous other remedial measures have all failed in the majority of instances to produce any material effect upon the course of the disease. Since Möbius, Ballet, and Enriquez and other investigators conceded that exophthalmic goiter was due to a functional derangement (an excessive or perverted secretion) of the thyroid gland, considerable progress has been made in the treatment of this affection. If the disease be the result of a too abundant or an excessively toxic secretion of the thyroid gland, the only rational form of therapy consists either in checking this secretion or else in neutralizing the toxic products thrown into the blood stream. The first of these alternatives was beyond our control, but, as the thyroid secretion is perhaps normally neutralized by certain antibodies present in the blood, the serum or blood of animals from which the thyroid gland had been removed and in which these antibodies had been allowed to accumulate for some time, should prove capable of neutralizing the excessive or perverted secretions causing Graves' disease. The first experiments conducted along these lines were undertaken independently of each other by Ballet and Enriquez, in Paris, and Lanz, in Amsterdam. The former used the serum, the latter the milk of thyroidectomized animals. The results obtained by either method were very encouraging. Further experiments along these lines were conducted by Burghart, Schultes, Göbel, Möbius, and others, some using the milk, others the blood of thyroidectomized animals. The same properties which were found in the blood and serum proved to be present also, although in not as great a concentration, in the milk of these animals. The latter was preferred by some experimenters because it proved less expensive than the pure sera. The serum was at first administered subcutaneously, but as it was found that the same results could be obtained by using slightly larger doses per os, this latter method was considered more desirable. Since the results of the investigators above referred to have been published, there have appeared occasional articles, especially in the German medical journals, reporting cases treated by the use of preparations derived from thyroidectomized animals.

The new preparation thyroidectin—is derived from the blood of the thyroidectomized animals. In the preparation of these capsules, not only the serum but the entire blood has been utilized. It forms a reddish-brown powder, readily soluble, non-toxic, unirritating to and rapidly absorbed from the stomach. It is put up in five grain capsules, of which one or two are administered three times a day, according to the needs of the individual case. This remedy has fairly passed the experimental stage; it has been placed in the hands of prominent neurologists in this country, who are careful observers, and have testified to the fact that it possesses at least the greatest palliative value in the treatment of exophthalmic goiter. Although thyroidectin is recommended especially for the treatment of exophthalmic goiter, it may also prove of value in various nervous disorders of obscure etiology, more or less closely related to Graves' disease, although the author has no actual data on the use of the preparation.

A preparation similar to thyroidectin has been in use on the continent for some time. Dr. S. Christens has used milk (rodagen) and serum of thyroidectomized goats, but for the last four years has confined himself to the use of blood tablets prepared in the following manner: The blood of a thyroidectomized goat is distributed in thin layers in shallow dishes, dried in an incubator at body temperature, powdered, some gum added, and made up into 35 cgm. (5 gr.) tablets. These tablets proved readily soluble in artificial gastric juice. Christens has treated up to this time 18 cases, all of which, with the exception of a few, which were treated only a short time, were considerably benefited.

Personal Experience with the Serum Treatment in Exophthalmic Goiter.—Dr. Sydney Kuh discussed this phase of the subject. He reported 11 cases of exophthalmic goiter, of whom one was treated by the administration of the serum of the thyroidectomized animal furnished by Merck, while in the other cases either the liquid or the desiccated serum furnished by Parke, Davis & Co., was given. His conclusions are as follows: His experience has not been sufficient to justify him in making any statement as to the curative effect of the serum. He believes, however, that he is justified in saying that it is an excellent palliative, at least; that it is not an infallible remedy is very probably true. Among the 11 cases there was one in which the effect of the treatment was temporary only, and another one in which there was possibly no effect at all. One thing was very striking, and that was the marked and rapid improvement in the subjective condition of most of the patients. Within a few days after taking the first dose of the serum they would report a change for the better. The remedy influences the pulse probably as much as anything that is employed in the treatment of tachycardia in exophthalmic goiter; it increases the appetite and decreases nervousness. It has, if one may judge from the series of cases he reported, a pronounced tendency to increase the weight. Theoretically, it seems hardly probable that the results from the serum should be permanent. One perhaps may expect that after some time a smaller does may suffice, that perhaps an intermittent treatment only may be required. In one case, the first one reported, the patient has been without serum now for quite a long period—for approximately two and a half years, and has remained in excellent health all that time, but it seems doubtful whether she will remain in that condition unless she occasionally takes a few doses of the serum.

Two Severe Cases of Exophthalmic Goiter.—Dr. Charles L. Mix said that he has had two very pronounced cases of exophthalmic goiter since Dr. Moyer put the serum into his possession. The first of these was a woman, who was in the Mercy Hospital for quite a period, with no diagnosis. Her case was regarded as a peculiar one. It was recognized that the heart was dilated, but further than that, and further than the neurasthenic and hysterical symptoms, nothing positive was made out. When he returned from his vacation in August, or September, the interne showed him the woman, and after a while the speaker recognized the case as one of exophthalmic goiter. He showed her to Dr. Moyer, who bore witness to the exquisite von Graefe's sign which was present. In fact, Dr. Moyer told him that it was one of the best he had ever seen in any case. The patient's pulse ranged from 120 to 130; it reached even

140. As to the *modus operandi* of this serum, the theory of Möbius is very simple. Myxedema and exophthalmic goiter are antipathal diseases. Myxedema is due to a diminution in the proper secretions of the thyroid gland, and atrophy possibly of the glandular tissue, while exophthalmic goiter is due, according to the theory of Möbius, to an excess of secretion or of some substance which circulates in the blood and has some definite purpose. In the case of myxedema it is necessary to give patients the thyroid gland, to introduce into their bodies or tissues a substance they need; and, conversely, in a case of exophthalmic goiter it is necessary to take out of the body of the individual those substances which are poisoning him or her, as the case may be. In this case this woman weighed 22 to 30 pounds less than she does at the present time. She was toxic in the ordinary sense of the word. One symptom characteristic of exophthalmic goiter is myasthenia. All of the individuals are weak. There may possibly be some relationship between myasthenia gravis and the thyroid gland, or possibly the relationship is one entirely of the muscles. But in this particular case the woman, who was bedridden, who had to give up doing housework and had to go to a hospital, to remain there for weeks in bed, was taken by a visiting nurse to Grove House, and is now working there in a laundry. She has gained forty pounds since she has been in Grove House, and her pulse ranges in the nineties at the present time. She is working for her living, and can work satisfactorily for a time. In addition to the improvement in tachycardia; in addition to the gain in weight, and in addition to the gain in strength, the doing away of myasthenia, there is a very pronounced effect also in the condition of the thyroid gland. The neck has diminished materially in size. The heart also has decreased in size materially. The other case is one very much worse than this. There is no particular harm in mentioning names. I will say, that Dr. Doering saw this woman and said he could not do any more for her. He gave her up. Dr. Murphy saw the woman and gave a similar prognosis. Dr. Herrick also saw her, and told her he could do nothing for her. Dr. Babcock, who saw her, said it would be impossible practically to do anything for her. Why? Because she had reached the stage when the heart was giving way, when edema was rapidly appearing. She had very marked ascites. The girth of the navel was 37 inches. Her legs were excessively edematous. Her heart was a beautiful example of delirium cordis. The pulse rate ranged between 140 and 150; the neck measured 14½ inches in circumference. She was 20 pounds under weight, but after the disappearance of the ascites she gained 20 pounds. At first she refused to take serum, but she was finally induced to take it, and took it in doses of 2 c.c. three times a day, which was afterward reduced to 1 c.c., three times a day, and then the serum was abandoned altogether, and dry serum was given. The other case took the dry serum from the start. She was given thyroidectomized serum, or the serum from a thyroidectomized horse was injected, and the patient grew worse, so that she would have nothing to do with horse serum. Goat serum proved to be her only salvation.

After using it during the winter, the patient was able to come to the speaker's office, during which time Dr. Moyer saw her. She had also visited his house on one occasion, and would have been at the meeting to-night if there had not been a sudden change in the weather. She has gained something like 20 pounds in weight; her pulse rate at present is about 111.

ASSOCIATION OF CLINICAL ASSISTANTS OF WILL'S HOSPITAL.

Second Regular Meeting, held February 1, 1905.

The President, George Robinson, M.D., in the Chair.

Color-Blindness in the Motormen and Conductors.—Dr. Helen C. Upham read a paper calling attention to the absence of examinations for this affection in these employees on suburban trolley lines. It was pointed out that many of the accidents occurring could be prevented by proper color signals recognized by the motormen. The colors red and green especially, she said, should be recognized by them. The tests should not be made with wools or colored miniature lights, but, as has been pointed out by Dr. Charles A. Oliver, they should be made under the actual conditions on the road and under atmospheric conditions. On many of the suburban lines a speed equalling that of the steam cars is attained. The cars rush through thickly populated neighborhoods with their human freights at the mercy of those who may or may not know the danger signals, no tests having been previously made. She believed that these men should be subjected to the same examination for acuity of vision and colors as is required of steam railways, ships, and in all occupations involving the ability to distinguish between the primary colors.

In the discussion, Dr. J. Hiland Dewey reminded the members that many of the accidents on a road occurred not as a result of color blindness, but by an ignoring of the danger signals through carelessness of those who are responsible. Dr. John T. Krall thought that no matter if some employees were careless, and caused loss of life, care should be taken in selecting only those who had full acuity of vision in each eye and normal color perception in both eyes. The examination should be made only by those who are known to have normal color perception. He believed that the whole subject of examination of trolley car employees was a very important one.

So-called Traumatic Conjunctivitis.—Dr. James A. Kearney presented this case, also a case of ulcer of the cornea in which dilation of the pupil had not been obtained until eserine had been used for a week followed by atropine.

Foreign Bodies in the Eye.—Dr. Dewey exhibited five pieces of wood which he had removed from the orbit of a child. Each piece measured about a centimeter long and ranged from one to three millimeters in diameter. The only history obtainable was that the child had run a stick against the eye while playing. The pieces were found situated between the eyeball and the outer wall of the orbit. They were deeply imbedded in the orbital tissues. At the time of presenting the paper the eye was in a healthy condition and the orbital wound had healed very nicely.

In the discussion Dr. Robinson commented on the similarity in length of the various pieces, and the remarkable amount of wood which had been stored in the orbit of such a young subject. Dr. Dewey promised a full report of the progress of the case at a later date.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regularly Monthly Meeting, held January 28, 1905.

The President, Augustus S. Knight, M.D., in the Chair.

The Scientific business of the evening was opened by the presentation of patients.

Epithelioma of Penis.—Dr. Follen Cabot presented a case of epithelioma of the penis which had been treated by operation with immediate good results. The patient first noted, some seven months ago, what appeared to be a pimple on the organ. He paid no attention to it for some time, but it kept on growing constantly in size. He used various washes, but of course without success, and seems to have been afraid to consult a physician. The tumor increased until it became a cauliflower-like growth, but did not interfere in any way with urination. As the result of the growth of the malignant tumor, cachexia developed and, though there are no cardiac or pulmonary symptoms, he lost forty pounds in six months and his complexion took on a yellowish cast, so typical of severe malignant disease. Considering the age of the patient there seemed no doubt of the diagnosis and microscopical examination of the specimen since has shown the peculiar grouping of the cancer cells of malignant disease. The whole organ was removed, leaving an opening of the urethra and perineum for purposes of urination. Immediately after the operation, the patient began to gain in weight and after three weeks was discharged in a much better condition than on entrance, and with his wound perfectly healed. He now suffers from no discomfort, and is to report regularly lest recurrence should take place.

Spontaneous Cure of Empyema.—Dr. Scott presented a patient aged about five years, in whom a collection of purulent fluid in the pleural cavity had disappeared after a test by the hypodermic needle had shown its presence. The patient suffered from pneumonia some five weeks before the difficulty of breathing and general depression occurred, which pointed to the existence of some sequela. Examination showed that the lower lobe of the left lung gave a perfectly flat note for two or three inches above the diaphragm. Skoda's resonance occurred just above. There was no heart displacement, but on two occasions pus was obtained by aspiration, an ordinary hypodermic syringeful being obtained on each occasion. The patient was admitted to the hospital with the idea that an operation might be necessary, but improvement took place and no signs of the pus that was present are to be found.

Absorption from Serous Surfaces.—Dr. Howard Lilienthal in discussing Dr. Scott's case said that surgeons are thoroughly persuaded now of the absorption of pus from the peritoneum. If purulent fluid is not in too large amount and is not over septic, the peritoneum can be trusted to care for it perfectly. Why should not the pleura then be expected to do as much? At times a sacculated empyema may not contain as much pus as was anticipated. Dr. Lilienthal has drawn off a half ounce of pus by aspiration and then opened up the pleura two days later to find that there was no more present. On the other hand the aspiration of frank creamy pus from the cavity of the joint may be followed after the application of a plaster splint by complete recovery. In a word, surgeons are receding somewhat from the principle that wherever there is pus, it must be evacuated, and the question that comes for consideration is how toxic may be the purulent fluid in a given case.

Subsequent Dangers.—Dr. Charles Schramm said that where purulent fluid is allowed to remain in the pleural cavity for some time, even though it may be absorbed, the subsequent condition of the patient is not likely to be so thoroughly satisfactory as if it were well evacuated. The future outlook of the case is not so good.

Dr. Spooner said that certain surgeons now incise a bubo and after pressing out some of the material, simply sew up the edges of the incision and it usually proceeds to get well. In a word, it would seem as though the relief of tension and pressure on the tissues enables nature to care for the purulent material in her own way. The ultimate results are claimed to be better than by the attempt to completely remove all infectious material.

Dr. Foote said that for small amounts of purulent material, the skin can be trusted to take care of them perfectly and the same principle would seem to hold good for small collections of pus in other parts of the body. For larger collections of purulent material, however, the question is very dubious.

Dr. Sturgis said that small abscesses might be removed by absorption, but larger amounts of pus must be treated by surgical procedure. As to the opening of buboes, it is an extremely difficult matter to decide when pus is present. An incision into a bubo containing no pus might readily cause its resolution before pus formation. This may account for some of the good results obtained by the newer French method of immediate closure after incision.

Pleural Absorption.—Dr. Frank Daniels said that as a rule whenever there is purulent effusion into the pleural cavity, there is so much thickening of the pleural serus membranes that its ordinary absorptive function is almost sure to disappear. Owing to the extent of the peritoneum, the same difficulty with nature's processes does not occur, some portions of the peritoneum are almost sure to remain healthy. Dr. Daniels has never seen a pleural purulent effusion removed by absorption. He has seen it evacuated in many ways, especially by coughing up through the lungs, but would find it hard to trust to nature to remove pus that has actually collected in the pleural cavity.

In closing the discussion, Dr. Scott said that the lesson of the case would seem to be that children react very differently to certain infections than do adults. Their vigorous growing tissues seem to be able at times to throw off infectious material that would utterly hamper the function of even adult tissues. It seems well in many cases then not to be over hasty in the surgical treatment of children, since nature can be trusted so much more. Such cases of absorption of purulent exudate must be very rare, yet if they do occur, the care of children with the deliberate idea of encouraging such a very favorable result must be borne in mind.

Sea Air and Surgical Tuberculosis.—Dr. J. W. Brannan reported the results of the treatment of certain children suffering from surgical tuberculosis by means of sea air. The little patients were sufferers from tuberculosis of bones and glands and derived such benefits from eight months of residence at the seashore as to make it very evident that this form of treatment is much more important than the most careful surgical intervention and the most scrupulous postoperative attention in the best regulated city hospitals. The idea of course is not new, since

for nearly fifty years now the French have had hospitals near the seashore in which children suffering from surgical tuberculosis have been under treatment. The results obtained at the French hospitals have been such as to make it clear that the expenditure of money in this way is amply repaid by the better results obtained. In England only one seashore hospital of this kind has been established, but here too the results have been excellent.

New York Experience.—The New York Association for the Improvement of the Condition of the Poor, realizing how much there was to be desired in the improvements of children's health under hospital treatment when suffering from surgical tuberculosis, that they sent a delegate to investigate the conditions in France. His report was so favorable that last summer ten tents were purchased and 52 children were taken down during the summer to Coney Island to be given the opportunity to live along the seashore. One of the most important elements of the daily régime at the seashore is the amount of occupation the children secure while playing in the sand. This keeps them out of door most of the day and before long all of the children in spite of bandages and splints were in total forgetfulness of themselves playing in the sand. Besides this all of them bathed in the salt water every day. Some of the children had open sinuses. One of them had a sinus of the antrum that had been open for several years, but not only did the salt water get at these sinuses, but occasionally sand got into them. Notwithstanding these supposed irritants, in fact it might almost be said, because of them, the sinuses healed not to reopen later.

Winter Retention.—The experience in France seems to show that at least three years is required for the cure of a case of surgical tuberculosis. Accordingly it was resolved to keep these children during the winter down on Coney Island and they occupied one of the buildings at Seabreeze. The colder weather far from stopping the benefit to the children, has apparently added to the zest of their outdoor pleasures. Not even a snowstorm keeps them inside. It was snowing hard on Christmas Day, yet all of them gathered round the bonfire. Occasionally from the open windows snow drifts in over the coverlets of the beds, but the children sleep soundly in spite of it. There are none of the starting pains so common among tuberculous children. The French custom is to close the windows at night, because the French have a dread of the night air. This seems to be a mistake, however, for the children sleep better at Seabreeze with the windows open. Few operations are needed and when these are performed, the progress then is rapid. In general it may be said that the progress during the cold weather is even better than in warm weather. This of course is true also for pulmonary tuberculosis, with regard to which indeed it is said, that a patient does very well if he holds his own in the summer time, while for hopeful results there must be distinct gain in the winter time.

Situation at Coney Island.—The present situation at Coney Island is in many ways ideal. The shore of the island faces the south and so gets the benefit of the mildest breezes, while in France the seacoast on which the children's hospitals are situated faces the north. There is, too, more sunshine at Coney Island than on the northern coast of France. Reasonable care is taken that the children do not suffer from the cold at times while dressing and undressing. The steam heat necessary for this is put on shortly before it is needed and then can be shut off. At Seabreeze the good fortune has been to have a superintendent, a nurse who has seen the treatment of pulmonary tuberculosis at Trudeau in the Adirondacks during the winter. This insures the children having the free access of air which constitutes so important a part of the successful treatment of any form of tuberculosis. It might be thought that the cold would be depressing to the circulation of these weakened children. On the contrary, their hands are warm as toast and at times, while the visiting physician making his rounds and unaccustomed to the cold, is apt to shiver from it, they are rosy and cheerful and not only have no complaints, but laugh at his cold hands and want to show him how nice and warm are their own.

Outdoor Air in Surgical Tuberculosis. Dr. Virgil P. Gibney said that undoubtedly the opportunities for outdoor air provided that a place like that near Seabreeze, is almost ideal for children suffering from tuberculosis. Dr. Gibney has realized this even from the unfavorable circumstances to which the children are sometimes sent home from hospitals, yet do better than they did under the most careful hospital treatment. Not long since in looking up the statistics of tuberculosis of the ankle, in which cases of fistulæ are prone to be especially obstinate to treatment, it is found that children sent home to rear tenements where the unfavorable conditions would seem to be sure to exaggerate their ill health, have been found after a couple of years to be cured. Not infrequently it was found that these children spent most of their time in the yards while at home and thus secured what was absolutely the best tonic for them. The more one sees of surgical tuberculosis under hospital treatment, the more one realizes the necessity for getting the little patients out of the hospital air into other surroundings.

Not so much Orthopedics as Nutrition.—Dr. Taylor said that this question of surgical tuberculosis in children and fresh air was timely. At the present moment it is realized very generally that orthopedics does not do much for children suffering from tuberculosis and that nutrition is much better than splints and operations. Whenever hospital patients have been sent out to summer homes, they always return better with their sinuses either completely healed or so much reduced in size as to be very little drain on the sufferer's health. Five new homes for children suffering from tuberculosis are to be opened this summer and this is part of the larger movement to get all sorts of dependents as well as epileptics and the tuberculous out into the country. Undoubtedly the change of air is the most important feature. As to whether the sea or the inland air is the better, remains a question, but there is no doubt that for children the opportunities for play afforded near the seashore make the best possible tonic and keep the little ones from having time hang heavy on their hands. If the children only play, mechanical treatment may well be disregarded, and it has been noted over and over again that even though they hobble around on their apparatus in such a way as seemingly to undo its good purpose, yet excellent results have obtained.

Illustrative Cases.—Dr. Wallis said that some of the results obtained are surprising. In one case the sinuses leading from the ankle seemed to be such a drain upon the patient's health and seemed to be so absolutely intractable, that amputation was advised. In spite of this after six months of country air, the sinuses are better and reasonably good movement has been secured in the ankle-joint. Very little immobilization is needed under the condition of better nutrition that soon

begins to develop, whereas the result of chronic suppuration, amyloid disease has developed, the patients do not get better. When there are infected glands present, the improvement seems to be only temporary and it would appear advisable to remove such glands. So far of course the experience has been obtained only with regard to the worst class of cases, indeed some of them looked hopeless when they were transferred to the country. Notwithstanding this, the average gain per week per child has been a fifth of a pound. There is no doubt that if beginning cases are selected, even better results will be obtained.

Dr. Whitman said that the experience at the hospitals is that children having opportunities for a summer at the seashore come back in much better condition than those who pass their summer elsewhere.

Dr. Frank Daniels said that the universal experience is now that chronic patients must be made to get out of doors as much as possible.

Dr. Charles Schram said that undoubtedly the greater frequency among children of infection of glands and of bones pointed to the origin of their tuberculosis from food. The avenue of entrance for the bacilli is undoubtedly through the digestive tract. Not infrequently it happens that bacilli lie dormant, especially in the lungs for many years, until some running down of the patient's general health in later life gives the opportunity for the bacilli to invade other tissues. If these cases can be successfully treated by means of outdoor air at the seaside, it will constitute an ideal prophylaxis against the outbreak of disease later in life and will help to lessen the mortality not only directly but indirectly from tuberculosis, because there will be fewer foci of the disease.

JOINT MEETING OF THE CHICAGO UROLOGICAL AND CHICAGO MEDICAL SOCIETIES.

Meeting, held March 1, 1905.

President of the Chicago Urological Society, R. R. Campbell, M.D., in the Chair.

Pus Infections of the Genital Tract in the Male.—Dr. William T. Belfield read a paper on this subject, in which he stated that pus infections of the genital tract in the male are induced by the gonococcus and by the common pyogenic bacteria. To the latter the healthy urethra is immune, since they are found as constantly in the average urethra as in the average mouth; they invade the urethral tissues when the vitality of the latter is reduced, by stricture formation or by senility. Pus infections of the senile prostate are common, even before urethral instruments have been introduced; they are commonly mistaken for prostatic hypertrophy, because the subjects are elderly; and they have furnished brilliant cures to the Bottini operation, castration and prostatectomy, though curable without operation by massage and silver nitrate injections. The penile urethra is a watershed whose summit is near its middle; the bulbous urethra is therefore a catch-basin for pus during a gonorrhea, and should be washed out by injections; otherwise it becomes the site of stubborn strictures. The lacunæ, ten to twenty in number (the posterior ones opening toward the bladder), the utricle and the prostatic follicles, are inaccessible to both urethral and internal medication; they therefore harbor the infection after the general surface is cured, and may reinfect the latter. As the embryonic cloaca furnishes both trigonum and deep urethra, a pus infection which reaches the prostate, as gonorrhea usually does, is apt to invade the trigonum also; but it stops there, the rest of the bladder being seldom invaded, as the cystoscope shows. "Gonorrhea cystitis," is a misnomer for an infection limited to the deep urethra and trigonum.

Pus Tubes in the Male.—The genital duct proper—seminal vesicle, vas deferens, and epididymis—reacts to the pyogenic bacteria just as does the urethra, that is, by suppuration. This fact has been hitherto overlooked, and gonorrheal epididymitis is even to-day treated as a medical rather than as a surgical disease, probably because fluctuation in the epididymis is so seldom recognized. The author's investigations have shown that the pus infections of the male genital duct are quite analogous to those of the Fallopian tubes; that pus tubes are quite as common in the male as they are known to be in the female; and that acute epididymitis, gonorrheal or otherwise, should be treated as a suppurative process, by incision and drainage. While this may be omitted in the mild cases, it should be practised in the severe grades, especially when acute hydrocele and scrotal edema appear, for these are infallible signs of suppuration. In chronic epididymitis, also, especially when a painful and tender swelling persists in the epididymitis, incision or excision of the pus focus may be required.

Direct Medication of the Vas and Vesicle.—The author has practised a therapeutic measure which seems to be novel, namely, the injection of the entire vas deferens and the seminal vesicle through a needle introduced into the vas, just above the epididymis. The therapeutic value of this measure is yet to be determined; at present it is merely asserted that the mucous lining of the vas and seminal vesicle can be mediated in this way. The pelvic organs of a cadaver were shown, in which this injection had been practised *in situ* with Prussian blue; the injected vas and vesicle were seen to be distended and bluish in color.

X-rays as a Means of Diagnosis in Kidney Surgery.—Dr. Arthur Dean Bevan called attention to the fact that the first work that was done in this country in this line was done in Chicago; that very early after the discovery of the X-ray by Roentgen Dr. Otto Schmidt developed a complete laboratory for X-ray purposes in this city. He was assisted by Mr. Fuchs, and very early in the work Dr. Bevan had the opportunity of submitting a medical student to the X-ray and obtained a very good plate. It was a case in which he had already removed a stone from one kidney, and later symptoms had developed suggesting stone in the other. He took an X-ray picture and found on the suspected side very definite evidence of stone. At about the same time, Dr. L. L. McArthur had a case which was successful in the sense that the X-ray picture showed a shadow which later proved to be a mass of concretions or gravel, and not a single definite stone. These two cases were the first reported in this country, and before any of this work had been done on the continent. This work was done in Chicago in 1897. Some British and Scottish surgeons had a little before this reported some successful work. Even as late as a year ago one of the most prominent surgeons in this country was in the laboratory at the Presbyterian Hospital and with a wave of his hand said, "I have no confidence in the use of the X-ray as a means of diagnosis in kidney work; I have been fooled by it, and I regard it as an unreliable piece of evidence." However, since that time very definite results have been obtained by the use of the X-ray. Leonard, of Philadelphia, picked up the work, which was begun in Chicago, and developed it to a point where he showed pretty conclusively that the evidence furnished by the X-ray was to be relied on, and even went so far as to make the claim which at that time was very

generally ridiculed that the negative evidence, where the differentiation was clear, was also to be relied upon. A little later, after Leonard's paper, Dr. Bevan published a paper in the *Annals of Surgery* reporting 13 or 14 cases, and made the same claim that the X-ray as a means of diagnosis was to be relied upon to a greater extent than any other means we had at our disposal in cases of kidney stone. He went so far as to make the claim that the X-ray picture, showing good differentiation, was to be relied upon very often more than an exploratofy incision, because he had early in the work removed a number of kidney stones in cases in which other surgeons had made exploratory incisions and had failed to find stones. He thinks the best exposition of this entire work is to be found in a comparatively recent number of the *Beiträge für Chirurgie,* from the pens of Kümmel and Rumpell. Kümmell takes the position of Leonard and the speaker, and presents practically these conclusions, that the X-ray, properly used, will detect a stone in any individual, no matter how thick, and a stone of any chemical composition; that the detection of the stone does not depend so much upon the chemical composition or thickness of the individual as it does upon the proper use of the X-ray. Kümmel says there were 18 cases of positive examinations showing stone in the plate; the patients were operated upon and the stones found at the time of operation, and in two additional cases he found a stone post mortem. In a similar number of cases where no stone was found, but where a stone was suspected, other lesions, such as hydronephrosis, pyonephrosis, hypernephroma, tuberculosis, etc., were found. The conclusions of Kümmel, Leonard and himself are not accepted to-day, and he wanted to point out why. Most of the work done with the X-ray in kidney stone has been poor work. He has seen a lot of work done at hospitals and in laboratories and submitted to medical men as finished, expert X-ray work, which was not really worthy of attention, which showed no differentiation. He had seen plates taken by men who were not competent to interpret the findings and determine whether or not stone was present; then operate upon the case, find no stone at the time of operation and damn the X-ray. The X-ray does not lie in these cases. The X-ray has absolutely no fallacies. To be sure, there will be a given group of cases where the evidence is uncertain, where the individual, who is doing this work, who is competent to do it and to interpret the work will distinctly place them in an uncertain group. On the other hand, the great majority of cases will be very clear and definite, and will belong distinctly to a group where there is stone or where there is no stone present, and where the differentiation is so clear and definite. We have no means at our disposal to-day which gives us the evidence that the X-ray does in kidney stone. The work which he has been able to do in this line is about the same as that reported by Kümmel in the *Beiträge* comprising about 40 cases. In a discussion of this subject last year, Dr. Joseph F. Smith reported 26 or 27 cases of his (Bevan's) work, which he had handled, and the results up to that time were the following: In 13 cases positive findings and stones found at operation; in about the same number of cases, negative findings, and at the same time of operation other pathological conditions than stone found. There was one doubtful case which was clearly stone clinically, which was found at the time of the operation. After the operation one could clearly see in the plates a stone behind the twelfth rib, in a position where it is not often found. The ordinary position of stone in these cases is 1½ inches from the transverse process and a little below the twelfth rib. With reference to the differential diagnosis between stone and other lesions of the kidney, and between stone and other conditions, such as appendicitis, gall-stones, and some other complicating conditions on the right side, in a series of several hundred cases collected since the introduction of the X-ray and the use of it in kidney stone work, he has had three cases in which a diagnosis of appendicitis was made, where the evidence seemed to be definite, the appendix was removed, and where later the X-ray disclosed a stone in the kidney. It is difficult to say definitely whether the symptoms which occurred in these cases were at all times due to the stone, and the appendix was not the organ at fault. In two of these cases he believes the appendix had not given rise to any symptom. The history in all three was quite similar. A series of attacks, the appendix removed, and later attacks after the operation. Then, another review of the situation, with the X-ray picture determining the presence of stone, the stone removed, and patient cured. One rather interesting feature in one of these cases was found: After the removal of the appendix first and the stone later, the patient was not cured, and a further review of the case showed tubercle bacilli in the urine. One kidney was found normal, and in the other nephrectomy resulted in a permanent cure. In the differential diagnosis the gall-stones should be considered. He has had this experience: The wife of a physician, with repeated attacks of pain upon the right side, suggesting attacks of appendicitis, of gall-stones, or of kidney lesion. A large kidney upon that side fairly movable, an X-ray picture showing in the usual position a kidney stone very definitely. Fortunately for the patient, her husband, who was a physician and very acute observer, was satisfied that whenever she had an attack there was a distinct small tumor in the region of the gall-bladder. At the time he made the examination he thought she had a kidney stone, and that the stone in the shadow was in the kidney. On the evidence submitted by her husband he operated over the gall-bladder and found a single stone in the contracted gall-bladder. This stone contained a great deal of carbonate of calcium, throwing a shadow as distinct as any kidney stone he had ever seen. In one other case, in a rather thin individual, not emaciated, he found another shadow in exactly the position of a stone in the pelvis of the kidney. The evidence was in favor of gall-stone attacks. The picture was one not accompanied with jaundice except a very slight attack. However, there was such a typical picture, chills and fever, and pain referred to the region of the bile tract, with the absence of distinct kidney symptoms, that a diagnosis of stone in the common duct was made, and later it developed there was a single stone in the common duct. He called attention to the fact that these stones very seldom show in the X-ray. He has learned from this experience, especially in connection with the appendix, to take the X-ray picture of the case submitted to him as a case of appendix trouble to exclude the possibility of kidney stone. Dr. Bevan showed numerous skiagraphs illustrating the points brought out by him in his previous remarks.

The Diagnosis of Ureteral Stones.—Dr. M. L. Harris stated that with the possible rare exception of a stone forming about a foreign body or an obstruction in the ureter, all ureteral stones have their origin in the kidneys, whence they migrate to some point in the ureter where they become arrested. Previous to the migration of a stone, the patient may or may not have presented symptoms pointing to kidney trouble, but the act of migrating is almost always accompanied by excruciating pain, known as renal or ureteral colic. The pain does not usually cease suddenly, as when the stone drops

into the bladder, followed shortly by its escape from the urethra, but disappears more gradually. The history of such an attack of pain is therefore the first symptom of importance in the diagnosis of ureteral stone. After the stone becomes lodged it may remain latent for an indefinite period, provided it does not completely occlude the lumen of the ureter so as to prevent the passage of the urine around it. More commonly the patient has recurring attacks of pain of varying intensity, and at variable intervals similar to the original ureteral colic, or a more or less fixed pain or soreness at some point in the lumbar region or along the course of the ureter may persist. The urinary findings and other symptoms are such as are common to kidney stones, or a pyelitis, or ureteritis from other causes, and therefore in no way characteristic. Localized tenderness along the ureter, or an enlarged ureter, if detached, on palpation may have some significance, but are not conclusive. Stones lodged at the lower end of the ureter may be palpated at times through the vagina or more rarely through the rectum. With the exception of these latter cases, a diagnosis of ureteral stone based on the symptomatology can never be more than presumptive, and previous to the advent of the Roentgen ray and of the ureteral catheter a diagnosis of a ureteral stone in any portion of the ureter, except the lower end, is almost never made except at an operation. With the aid of the X-ray stones were soon recognized in all portions of the ureter and when a distinct, well-defined shadow was obtained in the course of this duct, a diagnosis of stone was considered positive. The great value of the X-ray was well shown in one of the cases reported by the author. In this case the X-ray not only aided materially in the diagnosis, but by accurately localizing the stone facilitated its removal. It should be remembered, however, that a skiagram is but a visible expression of the relative facility with which the X-rays are transmitted through the various substances which have been interposed. A shadow in the picture does not in any way define what the cause of that shadow was, but this must be determined entirely from collateral facts. A correct interpretation of the shadows was very important, yet this may be difficult or even impossible without a knowledge of all of the collateral facts pertaining to the particular case in hand. Dr. Harris directed attention to the possibility of error in interpreting shadows which apparently lie in the course of the ureter, and particularly that portion of the ureter which is contained within the pelvis. He has had two interesting cases recently in which an error of interpretation of the significance of distinct shadows of this portion of the pelvis was made. These two cases were cited in detail, and showed how easy it is to make an error in diagnosis by depending on the X-ray alone in supposed ureteral stones. What the cause of these shadows was still remains a mystery. Whether they were due to phleboliths or to small sesamoids or spots of calcification in some of the muscles of the pelvis he is unable to say, but that they were not due to ureteral stones is certain, and that such shadows cannot by their appearance alone be distinguished from ureteral stones is equally true. These cases also teach us how such errors may be avoided in the future. When such shadows are found in this portion of the pelvis, with symptoms pointing to ureteral stone, the ureters should be catheterized in order to determine whether the shadow actually lies in the course of the ureter, and whether the catheter meets an obstruction at the point indicated. The tip of the bougie may be waxed, so that contact with a foreign body, such as a stone, may be recognized by the indentations made in the wax. It is not his intention to depreciate the value of the X-ray in this work, but to call attention to the fact that there may be other bodies in the pelvis capable of casting shadows which, from appearances alone, cannot be distinguished from shadows cast by ureteral stones, and that in some of these cases a correct diagnosis can be made only by the use of the ureteral bougie.

An Attempt to Use the Electric Conductivity of Urine for Clinical Purposes.—Drs. Gustav Kolischer and Louis E. Schmidt read a joint paper with this title. After referring to the methods of Richter, Caspar, Kümmel, Turner, and Löwenhardt in determining the functional capacity of the kidney, the authors stated that they had tried to determine the functional capacity of the kidneys from a new point of view. They tried to make every kidney a standard unto itself. They started from the idea that the vitality and normal and abnormal status of any tissue can best be tested by observing its reactions to certain interferences brought to bear upon it. Starting from the experience that certain stains brought into the circulation would appear at different times and with different intensity in the urine, they investigated whether or not the secreting efficiency of normal and abnormal kidneys might be influenced in a way peculiar and characteristic of normal and abnormal conditions of the secreting tissue. If that be the case the osmotic concentration of the urine voided before and after staining certainly ought to show marked differences. The results of their investigations so far seem to bear out these theoretical speculations. As the most sensitive test they resorted to the test of electric conductivity and as a method of staining they selected hypodermic injections of indigo carmine. Urine drawn at the same time separately from either normal kidney in an individual, otherwise perfectly healthy, might show different electric conductivity. After the stain is brought into the circulation, and after the urine becomes colored, the urine of normal kidneys always shows a slight decrease of electric conductivity which resistance will never exceed nine international ohms. In case urine simultaneously drawn from both normal kidneys shows different electric conductivity before staining, the decrease of conductivity appearing after staining is exactly the same in either specimen. Urine drawn from pathological kidneys will always after staining show a decided increase of electric conductivity. So far, the authors believe they are justified in saying that any increase after staining of electric conductivity beyond 10 international ohms is characteristic of impaired health of the kidney. If this increase stays inside the limits of 20 ohms, this kidney may be considered safe in a surgical sense, that is, it can reasonably be expected to be of sufficient functional capacity to attend to the eliminating process after its mate has been removed. Any kidney whose urine after staining shows an increase of electric conductivity beyond 20 ohms, has to be considered as absolutely unsafe in a surgical sense. If the method of the authors should prove to be reliable, they have succeeded in determining the fact that there are cases of one-sided nephritis. Judging from their experiments, there seems to be a fair prospect they will be able to determine by this method in advance whether a given individual will react as to his kidneys favorably or unfavorably to the administration of a general anesthetic. Dr. B. C. Corbus demonstrated an apparatus for testing the electric conductivity of urine.

BOOKS RECEIVED.

A Text-book of Legal Medicine. By Dr. F. W. Draper. 8vo, 573 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

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ORIGINAL ARTICLES.

RAILWAY SPINE.[1]

BY EDWARD B. ANGELL, M.D.,
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WHEN Erichsen, in 1866, published his classical work "On Railway and other Injuries of the Nervous System," a new field fertile alike to medicine and law, was thrown open to assiduous cultivation of claims for damages. The nervous pathology of that day was crude, highly speculative, and everything went. Spinal concussion, spinal weakness, spinal congestion, spinal inflammation and other awe-inspiring terms were employed in the characterization of a serious and intractable malady that seemed to be the peculiar property of railway wrecks.

Unquestionably Erichsen's description of this class of cases is full and complete and his later essay on "Spinal Concussion" contains as vivid and accurate a description of the subjective symptoms of the results of injuries as any work of to-day. His notions, however, of the changes in the nervous system which gave rise to the symptoms were wholly speculative, founded upon the theories then prevalent., and were without substantial foundation.

This work made a profound impression upon the minds of both professions, and even to-day is the guiding star in many a case coming before the courts for adjudication. If medicine were an exact science, if human nature were reliable, if practitioners, both of law and medicine, were but single minded in assisting the court rather than their clients, these cases of so-called railway spine would reach a more satisfactory conclusion.

Members of the medical profession know rather more at the present day of the nature of these nervous results of trauma, and place little credence upon the earlier pathology. We know, too, how severe the injury must be, how great the shock required, to do distinct harm to the spinal cord itself—a very different thing, by the way, from the spine.

The spinal column—and when we speak of the spine, that is what we mean—is a very strong and irrefrangible case for a delicate and susceptible bundle of nervous tissue, the spinal cord. It is, however, supple, and will withstand much torsion and severe concussion without injury to its vital contents. Unless, indeed, the spinal vertebræ are dislocated or fractured, very rarely is the cord damaged in any way. When sufficiently severe violence occurs, the results of such damage are intense and immediate. This, however, is not the condition ever found in the so-called "Railway Spine," and I only call attention to it for its negative value. Do not forget, then, that more than concussion of the spine, more than sprain of its muscles and ligaments, more than general bruises, more than shock or fear must be present to cause any serious disturbance of the spinal cord itself. And yet upon "permanent and incurable injury to the spinal cord" hang the majority of damage suits as ordinarily conducted even to-day.

I will admit that in a very small number of cases severe concussion may cause hemorrhages into the cord, even when the spinal column itself is uninjured. But this is rare, indeed, and need scarcely be taken into consideration in most cases.

What then is "railway spine," since it evidently is rarely, at least, an injury of the spinal cord?

Many terms have been employed to express the clinical condition which is so frequently found as the result of accident due to misdirection of the tremendous energies of modern life. Traumatic neurosis, the more recent name given to the symptom complex, is perhaps most comprehensive, and yet this is but another name.

By neurosis we understand a functional disturbance of the nervous system, a perversion rather than an abolition of function, while the term traumatic conveniently identifies the condition with some accident rather than disease. The neurosis, however, differs in no way from that due to other causes.

It is perhaps needless to detail symptoms, but briefly I will give an illustrative case.

An active able-bodied man of thirty-six years, of Irish descent, of ordinary intelligence, of strong build, was unloading a car which stood on a switch. A shifting engine struck the car, pushed it over an embankment of eight or ten feet in height and the patient was thrown forcibly, striking his right side against the car. The contents of the car fell upon him. He was greatly frightened and his nervous system severely shocked. He was not unconscious and was shortly taken to his home one or two miles distant.

At the first he was bruised severely, nauseated and vomited more or less for three weeks. He was sleepless, dreaming constantly of the wreck. Even in the day-time the memory of his strenuous experience fixed itself upon his mind. He had more or less headache, was constantly in pain for about three months. His whole right side became weak and the right arm and right leg were practically paralyzed, and he became bed-

[1] Read at the Annual Meeting of the Medical Society of the State of New York, at Albany, N. Y., February 1, 1905.

ridden. He had no fever, although his pulse was rapid and excitable.

There was marked loss of sensibility over the right foreleg and forearm. The spine was very painful to pressure and in turning himself, his muscles stiffened as though to avoid pain. The general functions were normal, except that he had lost all interest in sexual matters and had became impotent. The extremities, especially the right, were cold, moist and purplish in color. The paralyzed leg, however, when suddenly dropped, sank slowly down, not helplessly as a paralyzed leg should.

Such was the conditon some six months after the accident, and his physicians believed he had a spinal malady and was permanently injured.

This is the common history of many of these cases. In some the symptomatology is even more extensive, the emotional condition more prominent, the nervous disturbances more grotesque, a manifestation of the disorder wholly inconsistent with any known organic malady. It is, however, this very dramatic combination of symptoms that impresses physician, lawyer and jury alike.

Organic diseases of the nervous system produce certain definite indications, certain changes in the normal reactions of health by which we may more or less easily spell out the nature, location and future of such diseases. Each strand of nerve fiber, each segment of the spinal cord, nearly every convolution of the brain itself can thus be patiently and successfully investigated.

Let us apply this method in the examination of our patient, and we assemble a number of definite objective facts, which are quite independent of the subjective symptoms of which he complains. Now we try to put our puzzle together, we try to fit these facts to the supposed spinal injury and cannot succeed. The paralysis is not absolute, the suspended leg falls slowly, not as a "dead" leg does when dropped. The loss of sensibility is not in accordance with anatomical relations; the reflexes are exaggerated when they ought to be abolished, if certain spinal areas are affected, or *vice versa*. In fact, the manifestation of disease is out of all proportion to the injuries received. It is a disturbance of the mind, not of the body. It is indeed a psychosis.

It is the gross inconsistency in symptomatology, the bizarre character of the clinical picture; the changing of the symptoms from day to day; the constant shifting of the areas painful to pressure that render a diagnosis of permanent lesion of the spinal cord absurd.

This neurosis, then, is a functional disturbance of the nervous system, a perversion of the mind and very largely dependent upon the the dominating influence of an imperative concept.

It is, however, none the less a disorder because it is functional rather than organic in character. It is not an imaginary ailment, although a highly wrought imagination has much to do with the disturbance. It is not conscious simulation or malingering, although expectant attention, with all its morbid relations, greatly exaggerates the symptoms presented. It exists in non-litigated cases and at times persists after a settlement is reached in medicolegal cases. The initial disturbance is due even more to the shock, perturbation or fear, than to the bruises and sprains to which the body may be subjected.

As illustrative of this condition let me give briefly as possible a recent case under observation: Mrs. J., in a minor railway accident, September, 1903, was thrown forward on her hands and knees, something heavy—a seat cushion—striking her back in the lumbar region. She had never been in a railroad accident before and was greatly frightened. There was no apparent injury aside from the general shock. Within six weeks, however, there developed a chain of symptoms exceedingly interesting and complex.. She "suffered terribly from backache, could scarcely walk and required constant assistance from her nurse." She was weak on the right side. The right arm displayed a coarse rhythmic, stereotyped tremor or spasm the rate of which was about three per second. This spasmodic movement was intensified by attention or excitement, especially when told to keep still. Pressure along the spine developed exceedingly tender spots, inconstant or shifting, however, upon examination, very characteristic of emotional conditions. There was a light anesthesia present generally over the right side, while there was concentric contraction of the color fields in both eyes, more marked on the right. She complained of inability to stand, the right leg being heavy and dragging in the effort to walk. Examination, however, showed very strikingly the condition known as paradoxical muscular action: *i.e.*, in any effort to move the leg, the opposing set of muscles became rigid and prevented the intended movement—paralysis through rigidity. Further, when the paralyzed leg was suddenly dropped, it slowly sank to the bed, not collapsing as in true paralysis. Other symptoms, subjective and objective, corroborated the diagnosis of a neurosis which was clearly an emotional or hysterical display dependent upon extravagant ideation, or an imperative concept, a psychical not a physical upset. With settlement of the damage suit, recovery was rapid and within a year was practically complete.

The imperative idea grows by what it feeds on: emotion, fear, sympathy, animosity toward the corporation, a host of emotional causes. The field of consciousness narrows, attention is more and more fixed upon the sufferings and misfortune, the great outside world is blotted out. Thus the bruises and local pains, the sense of reaction to the shock, result in a weakness more

or less localized, which gradually develops into a purely mental palsy, quite as definite, by the by, as its organic prototype. Organic disease, however, is usually permanent and incurable, functional disturbance rarely so and recovery may be confidently expected. It is similar to the hypnotic state, to which condition it is indeed very closely related. As Charcot, the great French neurologist, well said: "It is a gradual mental elaboration of an imperative or dominant idea developed in susceptible individuals through local shock, a species of autosuggestion, requiring a definite interval of time for its creation."

In a case reported by the late Dr. Andrews, of the Buffalo State Hospital, this is very well illustrated. The patient came under my own observation and during the last ten or fifteen years has so elaborated this phase of his subconscious mentality that the establishment of a serious train of symptoms is easy as "rolling off a log." Indeed, he goes about clothed in a "ready-made" suit of damages. To my own knowledge he has been the victim of "permanent spinal injuries" upon three occasions—I had almost said opportunities—only to recover when his suit was settled or thrown out of court. In justice to him I must add that he is not a malingerer, but rather the unhappy victim of an imperative idea, working upon an easily wrought imagination with the cooperation of too eager attorneys.

Similar conditions we meet with, irrespective of traumatic cases, and we call such cases neurasthenia or hysteria, according to their predominant symptoms. Why not then apply these same terms to accident cases presenting similar characteristics?

In the neurasthenic type we find general weakness, lassitude, indifference or even depression of the mind, a general breaking down of the physical, mental and moral vigor.

In the hysterical type, such as was present in Mrs. J.'s case, there is marked perversion of sensory, motor and ideational activity, resulting in a display of symptoms which no man can explain, no expert satisfactorily account for. The loss of sensibility is mental rather than physical, *i.e.*, it corresponds to no antomical arrangement of the nervous system. The motor weakness is not complete and often varies from day to day, or shows other peculiarities of too technical a nature to be detailed here. Curiously, very rarely will we meet with these conditions among those having well disciplined or critical minds. The credulous, simple-minded, those of somewhat limited intellect and experience, furnish the most fertile soil in which hysterical symptoms flourish. Susceptible to a high degree, the power of suggestion has an enormous influence in directing the attention and fixing the morbid phenomena. The atmosphere of their surroundings is pernicious, their forced inactivity pernicious, the investigation of their troubles, both by attorney and physician, is pernicious. The dread of a strange malady, the anticipation of the prospective trial, the fear of permanent injury, the worry due to wage loss, all tend to fasten the incubus of disease upon the attention, and add to the physical expression of the disordered mind. For in the last analysis it is a delusion—a delusion with, however a real physical expression in the shape of pain, anesthesia and palsy.

It is, nevertheless, a true disorder, caused by a very real injury, a shock to the mental synthesis, as definite a disability for the time being, as though a leg or an arm had been cut off, and one for which proper compensation can justly be claimed.

Yet, what a travesty upon justice in the award of damages do we often meet with. The dramatic situation of the plaintiff, his apparent absolute loss of power, all appeal to a sympathetic jury, and many times the amount is awarded that would be considered fair remuneration for an amputated leg or arm. Surely jurisprudence must remedy this, for there seems no limit to the amount a jury will give to such a claimant. Would it not be possible to establish an "unproven verdict," the final award at least being contingent upon the issue of the case? Or, again, might it not be well for corporations to forestall animosity, a very pregnant emotion in these cases, by securing proper care and treatment from the start?

And in what does proper treatment consist? In just one principle, isolation: absolute removal from the pernicious atmosphere of his surroundings to the well-regulated discipline and care of a hospital, where all influences make toward recovery. This alone will go far to shorten the attack, to hasten the cure. If in addition any satisfactory settlement of damages, even though not in accord with the exaggerated notions of the patient, friends and attorney, the chances of recovery will be excellent, and the termination more speedy.

"Railway Spine" is a convenient and picturesque term which has hypnotized juries, even as the shock has hypnotized the plaintiff. It is dramatic, but not accurate. The damage done is not to the spine or spinal cord, but to the mind. It is a psychical disorder not a physical one, although it has a physical expression in its symptomatology.

Prophylactic Injections of Diphtheria Antitoxin.—The curative action of diphtheria antitoxin is undisputed, but considerable doubt still exists, if an injection will prevent infection in those not yet infected. F. Wesener (*Münch. med. Woch.*, March 21, 1905) concludes that the serum really exerts a prophylactic action but that the protection is not an absolute one and hardly lasts longer than three or four weeks. An infection may occur even during this period, but the course of the disease is usually very mild. The customary dose for small children is 200 units, but the minimity would probably be of longer duration, if twice the amount were given.

TREATMENT OF NON-MALIGNANT DISEASES BY THE ROENTGEN RAY.[1]

BY RUSSELL H. BOGGS, M.D.,
OF PITTSBURG, PA.

During the past four years a great many diseases have been treated by the Roentgen rays, and, since we know what can be accomplished by this powerful therapeutic agent, the time has come when we should draw a line between those diseases which should and those which should not be treated by this method.

I can safely state that any one who has made a careful study of radiotherapy realizes the value of the rays in certain diseases. Whereas a large number of obstinate skin lesions can be cured by this method when the rays are properly applied, it is a fallacy to treat many of the trivial affections which can be cured by this method. It should be our object to treat every patient with the therapeutic agent that is the most effective and produces a cure in the shortest time. At the present time, there seems to be a diversity of opinion among the various dermatologists in regard to the value of the Roentgen rays in the treatment of some of the most obstinate skin lesions, which are best treated by this method. One will state that he has been successful in every case of acne so treated, while another will say that he believes acne should not be treated by the rays, but that radiotherapy is almost a specific for eczema and psoriasis. When these different reports are carefully analyzed, and the technic of each studied, it is plain why such conclusions are drawn. It is a well-known fact that, in order to do successful radiotherapy, it is just as essential for the operator to know how to apply the rays, as it is for him to make a differential diagnosis.

The Roentgen rays must be prescribed and given in a therapeutic dose for each disease, if results are expected. The dosage depends upon the quality and quantity absorbed, and one of these is as important as the other in giving a therapeutic dose, and to do the most successful work, they must be varied to suit each individual case.

It is a well-known fact that tissues are not always affected to the same extent by the same dose, any more than the same dose of a drug will always produce the same physiological action. But by studying the patient and disease, the same as before prescribing drugs, almost as uniform results in producing reactions can be obtained.

Idiosyncrasy is not a frequent cause of burns. A diseased area reacts more readily than normal tissue just the same as a patient whose vitality is low will burn more quickly than a healthy subject. A patient with a weak heart does not stand chloroform as well as one whose organs are normal, and when the patient does not stand the drug well, we realize that this fact is due to a known cause. The same is true of radiotherapy.

Now, why does the ray effect a cure in certain skin lesions where the older remedies fail? Possibly because the local therapeutic effect is deeper than that of the stimulating drugs.

All living tissues undergo a change when under the influence of the Roentgen rays. If the dose is very small, stimulation takes place, thus increasing nutrition; but larger doses will produce atrophy and degeneration. This depends upon the vitality of the tissues. Thus the nails, hair, papillæ, and glandular structures may be injuriously influenced, while the surrounding structures will be stimulated. It has been noted by various observers that the X-ray inflammation in the corium is folowed by migrations of leucocytes.

If any operator has observed how much easier it is to burn carcinomatous tissue, after the larger vessels supplying the malignant growth have been tied, he will readily see that the vitality of the tissues determines whether a given dose of X-ray increases or decreases the nutrition. It is not the X-ray which cures the patient, but it is the judgment of the operator in applying the rays. While skin diseases suitable to the X-ray are far more easily affected by the rays than deeper seated lesions, it is just as essential in order to secure the largest percentage of cures, to have a technic by which the rays are absorbed.

Acne.—This affection has a very important place in Roentgen ray therapy, because it is often a very obstinate disease to treat by the older methods. In comparing this method to curettage and incision, the rays give uniformly better results, and in these chronic cases pitting and scarring is usually avoided. This alone is sufficient to justify treating all cases of the pustular type by the X-ray. On the other hand, it would not be wise to treat every case of acne of the milder type by the X-ray. In the treatment of acne, it is likely that the rays cure by producing a leucocytosis, which is brought about by a dose not large enough to cause degeneration.

The degree to which the reaction must be carried to effect a cure in acne varies with the severity of the case. From my own experience, as well as that of others, it seems safe to state that 75 per cent. of all cases of acne can be cured without producing any noticeable reaction, and in the other 25 per cent. it will be necessary to produce a reaction which will cause peeling equal to a severe sunburn. If, in the 75 per cent. of the cases, the acne was cured and disappeared without producing any noticeable reaction, I believe we would have 25 per cent. of recurrences. So far, I have not had a recurrence in a case where reaction was followed by a peeling of the skin.

The following case, referred by Dr. Voight, was that of a patient who had acne for eight years, the papular and pustular form, covering the face and back. The patient had consulted and had been treated by two dermatologists in Philadelphia, one in New York and several in Pittsburg. He had received some benefit, but this was only temporary. The amount of scarring

[1] Read before the College of Physicians, in Philadelphia, Feb. 1, 1905.

and pitting was decidedly noticeable. A treatment three times a week was given for three months, when the disease had entirely disappeared. It is now eighteen months since the last treatment, and there has been no recurrence. The rays caused a disappearance of a great deal of the scarring. It is a well-known fact that the X-ray causes a disappearance of scars in many cases.

The treatment of acne requires considerable experience in studying the case before deciding upon a therapeutic dose. Again, certain tubes will produce a certain amount of tanning while others will produce scarcely any.

Lupus.—In the treatment of lupus, no other agent can be compared with the X-ray and Finsen light. The question as to which of these gives the best results has occasioned considerable discussion. In Europe the Finsen light seems to have the preference, while in this country the X-ray is used the most. The method of using each is most likely accountable for the preference in the various places. In Europe the Finsen apparatus is more powerful than that which is usually employed in this country. In order to secure penetration, it is necessary to use a large arc which consumes considerable current.

The X-ray produces results much more quickly than the Finsen light, but probably in some cases, where the area is small, it is inadvisable to use the Finsen method. I usually begin with the X-ray, continue until a slight dermatitis is produced and then use the Finsen light. By so doing, I believe, time is saved and, as a rule, the results are better. The cases of lupus vulgaris, which apparently cannot be cured by this method, are usually either not treated for a sufficient length of time, or the disease is very extensive and involves the deeper tissues and the patient is in very poor physical condition. It is not wise to discontinue treatment after all visible signs of the disease have disappeared. After the disease is apparently cured, I always advise the patient to take a few additional X-ray treatments and produce a slight reddening again. Where this practice has been adopted I have had no recurrences up to the present time.

I believe in some of the cases which have been treated in the past for lupus there was a mistaken diagnosis. While visiting different laboratories I have seen cases which were undoubtedly not lupus but syphilitic ulcers. This spoils our statistics, because when adjunct treatments are given, we do not know which has cured our patients.

I had two cases of this kind that did not heal until they were put on antisyphilitic treatment. Each had undergone a long treatment of potassium iodide before coming for the X-ray. Now, were these two cases of syphilitic ulcers and did the X-ray stimulate the ulcers sufficiently to heal? My diagnosis was syphilitic ulcers.

I report the following case to show why some physicians are doubtful about the utility of the X-ray in the treatment of lupus vulgaris:

Case.—Mrs. B., aged thirty years, had been treated at intervals for nine years for lupus vulgaris of the nose. She had been to ten or twelve physicians during this time, and they all made a diagnosis of lupus. One was a prominent dermatologist and a professor in one of the large eastern schools. He treated the patient a year and three months, the disease gradually becoming worse, and when the patient came to my office, the point of the nose was entirely destroyed. While under the dermatologist's care, she requested to be treated by the X-ray, and she was accordingly referred to the X-ray laboratory, but the dermatologist must have been extremely afraid of an overdose of the X-ray, as he instructed the radiotherapeutist under no circumstances to give an exposure of more than three minutes. The patient was given eight treatments, and the radiotherapeutist refused to give any more treatments unless he was allowed to give his usual exposure, which was fifteen minutes. This was three years ago, but it was counted as one of the X-ray failures to show results. This summer, it required three months to effect a cure.

In the treatment of glandular diseases, viz., tuberculosis, Hodgkin's disease and goiter, much has been accomplished by the use of the X-ray. I will not mention the results which have been had in carcinoma of the glands any further than to state that the X-ray will destroy the particles which cannot be reached by the knife. An excellent illustration of this was mentioned by Dr. Hulst, when he stated that the removal of the mass might be compared to a man shoveling snow off the street, but after he had done his work as thoroughly as possible, there would be left in the cracks a small amount of snow. But he stated the snow could be removed from the cracks by salt. Thus, the surgeon might be compared to the snow shoveler and the radiotherapeutist to the man who sprinkled the salt. I believe this comparison will apply to tuberculous glands as well, because if one gland is involved and removed, very likely the disease will involve adjacent glands.

It has been advocated not to operate on tuberculous glands except when they contain pus and then just make an incision for drainage. Here, the same as in the treatment of other diseases, it is well in many cases to consult a surgeon before the treatment is begun. The cosmetic results are certainly better when the cases are treated by the rays and the danger of secondary involvement is lessened.

Sufficient evidence has been shown in the treatment of goiter to advocate the use of the Roentgen ray. A certain few cases have responded readily when all other forms of treatment have been disappointing. In some of the cases that I have seen, the growth would only be reduced about one-half, but the symptoms had disappeared. This alone would be sufficient evidence to justify the patient in taking the treatment.

I have treated six cases, three of which were apparently cured, but in which slight enlargement remained.

A few cases of Hodgkin's disease have been reported as cured by the X-ray and, since this disease is so hopeless under the usual treatment, it seems advisable to submit these cases to treatment for the purpose of prolonging the patient's life and the possibility of effecting a cure. A remarkable fact is most cases has been shown after a few treatments in the improvement of the general condition of the patient.

CONCLUSIONS.

1. That it is necessary to distinguish between the non-malignant diseases which should, and those which should not be treated by the X-ray.

2. That while the continual cry of technic may become tiresome to some who think the subject can be mastered in a few days or a couple of months, the method of application of the rays and the judgment of the operator accounts largely for successful or unsuccessful work.

3. That it is just as essential to administer a therapeutic dose when applying the Roentgen rays as it is when prescribing powerful drugs.

4. That idiosyncrasy is not a frequent cause of excessive dermatitis.

5. That a dosage which causes stimulation of healthy tissues will usually produce a slight reaction in diseased tissues.

6. That, at all times, it should be remembered that it is not so much the X-ray that cures as the judgment with which it is employed.

7. That the X-ray is one of the best therapeutic agents known for the treatment of acne and many other skin diseases, but it is unnecessary in many instances to treat the trivial and less obstinate cases by this method.

8. That the X-ray, supplemented by Finsen light, is the most efficient therapeutic agent for the treatment of lupus.

9. That the X-ray is the most efficient agent for the treatment of certain tuberculous glands, Hodgkin's disease and selected cases of goiter.

TO WHAT EXTENT ARE CYCLOPLEGICS NECESSARY IN DETERMINING THE REFRACTION OF THE EYE AND IN THE PRESCRIBING OF LENSES.[1]

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I SUPPOSE that to many physicians who confine themselves to the practice of ophthalmology, the discussion of the subject I now propose will seem unnecessary. I have myself taken this view, but I find that, notwithstanding all that has been said and written, there is still a great diversity of opinion among men who are qualified by education and experience concerning the advisability of employing cycloplegics in determining the refraction of the eye and in prescribing lenses for the correction thereof.

In this, as in all subjects, there are those who take extreme views. I have heard of one ophthalmologist who thinks it a crime to fit glasses without the use of a cycloplegic; and if the pendulum swings so far in one direction, it is likely to swing to the same extreme in the other. There is, however, a happy middle ground, where, I believe, we should all like to stand, and it is my endeavor to find it.

In considering this subject, we must keep before our minds just what the conditions are that require the use of glasses and what we expect to accomplish with their aid. I would eliminate as far as possible, for this paper, the consideration of anomalies or insufficiencies of external muscles of the eye, and of the use of prisms, and confine myself to the refraction of the eye, including, of course, the ciliary muscle, on which depends, at least so I believe, the determination of the whole subject.

I will consider the eye as an optical organ and as an organ of vision. In considering the eye as an optical organ, we must eliminate the ciliary muscle and regard it as a passive organ, exactly as if it were a photographic camera, with its sensitive plate or retina, receiving light and portraying objects coming within the horopter of the instrument. In the emmetropic organ, the light coming from an object situated at the proper distance, or at infinity, will be focused on the retina, giving a clearly defined inverted image of the object. In this form of camera we could retain an exact focus by moving the whole body back as the object came too near, just as one might move the tripod on which the photographic camera is adjusted.

The hypermetropic camera is too short, and rays of light are focused behind the camera regardless of the distance of the object. In this optical organ it is impossible to get a clear image on the sensitive plate unless some power is given the instrument. This we can do by adding a convex lens to the one already existing in the camera.

The myopic camera is too long, and rays are focused in front of the sensitive plate. We can overcome this by bringing the object nearer the camera. In this camera we can get a distinct focus without adding to the instrument, by simply moving it backward or forward, depending upon the position of the object.

And then there is the last form, the astigmatic camera, in which to get a perfect image a cylindric lens must be added.

If this were all there was to this subject, if there were no ciliary muscle and it was only necessary in determining or measuring the refraction of the eye to find the lens which would bring the rays of light to a focus on the retina, whether the means used to find this was the ophthalmoscope, the retinoscope or the ophthalmometer, either

[1] Read before the Ninety-ninth Annual Meeting of the Medical Society of the State of New York, Albany, N. Y., January 31, 1905.

singly or conjointly, the work of the ophthalmologist in this particular would be an extremely simple matter, requiring very little time, thought or knowledge.

It is a fact, however, that the eye is not only an optical organ, but it is an organ of vision as well, or perhaps it would be better and more accurate to say that it is a part of the organ of vision, for perception of objects portrayed in the eye takes place in the brain. It is this that gives to the subject its great importance, and necessitates on the part of those who would engage in the work of detecting and correcting errors found in it, a knowledge of something more than optics.

The eye is not a passive organ, nor is vision a passive act. This is clearly demonstrated by the well-known fact that one can gaze into space with the eyelids open so that objects must be portrayed on the retina, and yet not see; in fact, be entirely oblivious of what is going on. How often have we passed a friend on the street, sure that his eyes were looking directly at us, and had him pass by entirely unconscious of our presence? His pupils would have contracted, his ciliary muscles would have taken action under the impulse sent from his brain, the optic nerves would have carried the impression made on his retina to his visual center, and he would have greeted us, had we by a word made him aware of our presence.

We have pictured the eye as an optical organ, but it is impossible to stop at that point. Being an active organ, a part of an active system, we cannot eliminate one part and retain the normal sequence. So I believe that if we paralyze the ciliary muscle when we attempt to correct the defects of the eye with lenses, we are starting from an erroneous base, by placing the eye in an abnormal condition.

Symptoms.—There is no way in which we can determine the nature of the condition which we have to deal with from the character of the symptoms presented.

I have tried time and time again to formulate some rule, but I do not believe it can be done. Headache we generally consider to result from hypermetropia and astigmatism rather than from myopia; and while this is true probably in the majority of cases, there are many exceptions. I have seen many cases of severe headache result from slight degrees of myopia. On the other hand, hypermetropia and astigmatism exist often without producing this symptom.

There is no symptom produced in any part of the body by any disease in the whole category of diseases, which cannot be duplicated or reproduced in highly nervous people when the eyes are defective. The correlation between the eyes and other organs of the body is very intimate, and I have seen symptoms produced by affections of other organs intensified and aggravated by irregularities in the optical condition of the eye. And the reverse is equally true, that symptoms due to defective conditions of the eye may be aggravated and intensified by affections of other organs remote from the eye and apparently having no direct connection with it.

It is not, therefore, a positive indication that lenses are not properly fitted because the symptoms for which they are prescribed and which seem to be referable to the eyes, do not cease when the lenses are worn.

It is natural, perhaps, for one to be so taken up with his specialty as to forget the rest of the body, but we ought to guard against being too exclusive or we shall do injustice to our patients. It is not uncommon to have patients insist that their glasses are at fault because their headaches do not cease, and to find that they need quinine, iodide of potassium or some other medication.

There is a growing desire on the part of imperfectly educated people to ask exclusive privileges at the hands of the legislature, because, in the opinion of these people, an education such as is required of physicians seems not to be necessary. Unfortunately the medical profession has been so taken up with its private affairs that it has allowed the arguments of these people to go unrefuted, and such legislation has been granted. This is so to a very limited extent in New York, but in many States most pernicious laws have been enacted giving privileges to incompetent people which never ought to have been given to any but educated and properly qualified physicians. The results of such laws cannot fail to be detrimental to the best interests of the community, and I feel sure that the enactment of them is entirely the fault of our profession.

Purposes for which Cycloplegics are used.—I think it will be admitted that cycloplegics are not necessary to allow us to make an ophthalmoscopic examination. If we desire only to dilate the pupil for this purpose, we can use cocaine. This may have a marked cycloplegic action, as I have more than once observed, but we do not expect this to be the case, nor do we generally find it so.

We use cycloplegics not for the purpose of ophthalmoscopic examination, nor to allow us to estimate the amount of error. We can determine the amount of error, if we have had sufficient practice, accurately enough for all practical purposes. Splitting hairs in determining the amount of error with the ophthalmoscope is not of any particular advantage to either the patient or the observer. I have heard men declare, and they were generally students, that they could estimate the amount of error within a quarter of a diopter, but I have never seen anybody who could do it with certainty, and I doubt if it would be of any particular benefit if it were possible.

The bright light of the ophthalmic mirror, thrown into the eye, at first causes a contraction of the pupil which is followed by a dilatation of the iris and an accompanying relaxation of the ciliary muscle. This, in the majority of cases, is

sufficient to enable us to estimate the amount of error, especially in hypermetropia, with sufficient accuracy for all practical purposes, and if we so desire we will find that this is confirmed by examinations under atropine.

In determining the lens to prescribe in hypermetropia, there is this to consider: Hypermetropia, being the condition which generally prevails, is probably the normal condition of the human eye. It is the natural condition and should therefore be considered the point of departure in most cases: and its deficiency, if you choose to so designate it, is compensated for by the ciliary muscle, or, to use the synonymous term, the accommodation.

If in hypermetropia there are asthenopic symptoms, it is due either to the fact that the hypermetropia is excessive and the accommodation unable to compensate for it, or, the hypermetropia being not excessive, the accommodation is in itself deficient, or the character of one's work such that the ciliary muscle is unable to meet the demands made upon it. In either case mechanical relief is necessary, and this is supplied by placing a convex lens before the eye to supplement the crystalline lens within the eye. The strength of this added lens will depend, all other things being equal, upon the individual. I do not believe there is any rule by which you can determine what the strength of this added lens should be, except the rule of the patient's acceptance.

If you absolutely paralyze the patient's accommodation, making manifest all the latent hypermetropia, and give him a glass representing this fully, you do not improve his condition. As long as the effect of the cycloplegic remains, the lens will be satisfactory and the patient will see well. When the ciliary muscle regains its normal strength, as it will, this lens will cause distress and the patient will refuse to wear it. Suppose you do not entirely correct the error, you may allow the effect of your drug to pass away and find how much he will accept then, and then allow him a certain amount of accommodative power and give him a glass whose strength shall represent the balance. This amount which you think he ought to compensate for will differ from the amount which some other observer might allow him; but whatever the amount is, it is a purely arbitrary ruling as to the strength the muscle should have. I do not believe any such estimate can be made. One might as well estimate the strength of the biceps of a pigmy and that of a giant.

My plan is to correct the amount of manifest error and increase the strength of the lens as circumstances necessitate. To a person with asthenopia, who has never worn glasses, the correction of manifest hypermetropia will give relief and comfort, and as a rule will be all that is required. This relief will last a certain length of time, depending upon the amount of error, the age and occupation of the individual. If the necessary relief is not obtained, or if the patient will not accept any lens, then I believe a cycloplegic should be resorted to.

In astigmatism, what I have said concerning hypermetropia will apply, with certain modifications. Repeated observations have demonstrated that astigmatism is generally corneal, and, furthermore, that a certain amount of lenticular astigmatism is normal. In December, 1893, I read before the Section in Ophthalmology of the New York Academy of Medicine, a paper on this subject, which was afterward published in the *Archives of Ophthalmology*. In this paper I presented the result of a study of two hundred eyes, in which I demonstrated, to my own satisfaction at least, that corneal astigmatism is the only astigmatism needing correction, in a very large proportion of cases, and that it can be positively measured and determined with the ophthalmometer; that lenticular astigmatism is compensatory and exists with sufficient regularity both in amount and character, to admit of definite rules for making the proper allowance for it. This can be illustrated in this manner: The normal corneal astigmatism is one-half of one diopter, with the rule. This is to say, the refraction of the eye, if determined by the corneal curvature, presents two focal points, the refraction being greater in the vertical than in the horizontal meridian. We find, however, in point of fact, that although the cornea would indicate this, the trial case, even when the eye is fully under the influence of atropine, does not corroborate it. Therefore, there must exist a counteracting influence elsewhere, and this, it is generally conceded, is due to a tilting of the lens, amounting to an astigmatism of one-half of one diopter against the rule, the opposite of the corneal astigmatism. This lenticular astigmatism is fairly constant in amount, while the corneal error varies exceedingly, and this gives us our cue for practice. If the measure of lenticular astigmatism is a definite and constant amount, a patient with astigmatism with the rule should accept the amount of corneal error less the amount of normal lenticular aberration; and when it is against the rule, plus the amount of lenticular astigmatism. When this is not the case, the accommodation has succeeded in overcoming the corneal error to a greater extent.

Inasmuch as it is the manifest error that causes trouble in most cases, representing, as it does, the amount that the accommodation is not able to take care of, by relieving this with the proper lens the asthenopia will be overcome. Later on, as more of the astigmatism becomes manifest, it can be relieved by increasing the strength of the lens.

I believe that, as a rule, in simple hypermetropia and in hypermetropic astigmatism it is only the amount which is uncompensated for, or which is compensated for with difficulty, that causes trouble, and if this is corrected, the trouble will cease.

In simple myopic astigmatism you will generally be able to get the patient to accept the

glass which represents the full amount of the error; whereas in simple hypermetropic astigmatism this may or may not be the case. Whether it is the case or not makes very little difference if you can relieve the asthenopia and correct the defect in vision. If you can do neither, then atropine may be resorted to, although one need not be disappointed if better results are not obtained with its use.

In mixed astigmatism, especially when the error is great, I often use atropine. Even in these cases one is as likely to get good results without atropine as with it. With mixed astigmatism, say of six or more diopters, good vision is exceptional, and asthenopia is not the rule. Very often good vision cannot be obtained, and one is justified in using any reasonable treatment to obtain a result. I have not felt that I obtained any better vision by using atropine in these cases.

In myopia and compound myopic astigmatism we have a different proposition, at least so it seems to me. In hypermetropia and simple astigmatism we have to deal with a condition requiring only mechanical correction; in myopia, whether with or without astigmatism, we are dealing with a diseased condition, and, like all diseased conditions, it requires watching. I believe, and extended experience tends only to confirm that belief, that children of tender years, afflicted with myopia, should have their accommodation paralyzed with atropine at least every six months, the eyes being protected while under the influence of the cycloplegic with colored glasses, until we are as confident as it is possible to be under such conditions, that the tendency of the disease is not to increase.

There are some conditions where atropine can be used with benefit besides those which I have mentioned. In children with intermittent strabismus convergence, atropine will procure good results. In older people who have gone through years of agony from uncorrected eye-strain, irritated perhaps to the verge of desperation, I believe that atropine, by enforcing rest, accomplishes a great deal. The fact is that atropine is a useful medicine and should be used as such. To instil it in eyes indiscriminately, simply to enable us to use retinoscopy, or to enable us to see how strong a glass we can force a patient to accept, when we have at our command the ophthalmoscope and the ophthalmometer, seems to me not only unnecessary but unjust.

I believe that cycloplegics should be used in the refraction room exceptionally. I do not believe that we ought to try to secure emmetropia without the aid of the accommodation, for such a condition would be a misfortune. I believe we should look on the ciliary muscle as a most valuable aid to vision and assist it when necessary, but under no condition should it be ignored.

There is perhaps no part of the body more dependent upon the general condition for the proper performance of its function than the eye. Every case of refraction coming to us should receive the most careful and discriminating consideration, and the condition of the other organs of the body should be given proper attention.

Certainly the determination of the question whether lenses applied to the eyes is all that is necessary, or whether some other treatment is indicated should never be entrusted to the judgment of a person who is not qualified by a medical education to render such a decision.

NASAL CONDITIONS DEPENDENT UPON THE GENERATIVE ORGANS.

BY JUSTUS SINEXON, M.D.,
OF PHILADELPHIA.

It is difficult to differentiate with a distinct line of demarkation the conditions of the nasal tissue dependent upon the generative organs, whether exercised normally or employed to excess, and the systemic influences produced by the stimulation of the entire vasomotor system which occurs during the performance of the procreative act.

While the study of these intranasal changes, dependent upon such conditons, is of comparatively recent date, obscure historical references and the household phrases of many nations from the earliest ages of antiquity point with vague and obscure references to the interdependence of these organs. The size and shape of the nose, in both ancient and modern times, has always been considered as an indication of the proportionate development of the generative organs, so that formerly the name "Nasuti" was applied to individuals so endowed. So intimately indeed was the nose supposed to be associated with the organs of generation that among the Greeks the crime of adultery was punished by the cutting off of this organ. Thus Virgil, depicting the wounds of Deiphobus in punishment for his unnatural passion for Helen, the wife of Menelaus, speaks of the "nose cut off by an inhuman wound ("Truncas inhonesto vulnere nares").

To Dr. John N. Mackenzie we are indebted for the major part of our knowledge of the classical history of such references and he has also furnished us with much valuable and interesting information from his personal experiences with this class of cases. Few of the modern writers on laryngology fail to recognize the importance of these reflex or associated conditions. Much has been written of certain neurotic or hysterial manifestations which have in truth but little bearing upon this subject. That there does exist a direct influence upon the mucous membrane of the nose and throat, due entirely to the normal stimulation or pathological irritation of the organs of generation, is not to be doubted when we study the literature of the subject or the clinical history of these cases.

The examination of the healthy nose and throat prior of the advent of puberty and that of the normal nasopharynx in the adult presents marked

changes both in structure and secretion. In children the nostrils are relatively much smaller than in adults, due in part to the temporary habit of mouth breathing employed during recreation and to the fact that they have not yet learned the proper toilet of the nose. The vascular supply is more evenly distributed and the secretions are thin and clear. The membrane lining the septum and turbinals is pink in color and on palpation, presents no connective tissue changes; responding promptly to stimuli, even to the free ingress of air on dilatation caused by the speculum. The hairs, which are so abundantly found in some races during adult life, are entirely absent. These are among the physical signs which are more or less constant, except as they may be temporarily influenced by the acute or infectious diseases, to which the nasopharynges of children are more frequently subjected.

The change in the tone and register of the voice, the growth of hair on the pubes and in in the anterior nares, as well as the development of the mammæ in the female with the advent of puberty, are also found associated with the increase in vascularity and contractility of the erectile tissue on the middle and superior turbinates. The majority of females after puberty show a turgescence of the nasal mucous membrane regularly with menstruation amounting in some cases to a marked coryza; and where this function has been suspended for a month or when pregnancy has taken place, this periodical engorgement occurs with uniform regularity. Hyperesthesia of the mucous membrane, lining the entire nasal cavity, caused by this periodical stimulation of the olfactory bulbs, often occurs in a more or less marked degree accompanying menstruation. This condition, known as hyperosmia, is most frequently found, as stated by Dr. Kyle, in sexual neurasthenics, and is not unusual in the sexual disorders of females during menstruation. In cases where the operations of oophorectomy or hysterectomy have been performed the nasal mucous membrane again returns to its infantile type, and the anterior nares are found to be more capacious. Hydrorrhea nasi occurring in women is frequently associated with menstruation and in many cases occurs only at these times, disappearing entirely during the intermentrual period. A patient suffering with this condition was under my care, during the past year, where the secretion from the nares was so profuse and constant just before and during the first day of the menstrual period that she was compelled to remain away from her place of employment. She had never suffered from dysmenorrhea and from her statements the flow was normal both in time and quantity, but the annoyance from the nasal condition caused her much distress.

Masturbation in children is in early years found associated with a boggy and thickened condition of the mucous membrane covering the turbinals; and if the practice be persisted in in excess after puberty the natural reactionary law obtains, and we find an atrophic state with symptoms even of ozena and of perversion of olfaction. This frequent engorgement of the nasal mucosa is sometimes relieved by epistaxis and the case is recorded by Du Saulsay, which has become historical in the annals of laryngology, of a student who suffered from severe frontal headache after prolonged and close mental application and who would commit this act of self-abuse without any sense of moral wrong or sexual gratification, that the resulting bleeding from the nose should relieve the distressing head symptoms. Some years ago a young woman, aged twenty years, consulted me complaining of frequent and profuse epistaxis. On questioning her I learned that she had become pregnant at the age of fifteen years, before she had menstruated. She further confessed that she had since been an inmate of a house of prostitution, and that in all that time—a period of five years—she had only seen a normal menstrual flow on two occasions, but that after a period of profound sexual excitement she would suffer from these severe nasal hemorrhages. Examination of the nose with the speculum showed only the characteristic conditions, so frequently found in those who lead an immoral life, of a relaxed mucous membrane with increased moisture but without the redness or vascular engorgement of acute congestion. There existed no evidence of any ulceration, no erosion. Unfortunately, this case did not respond to any remedial measures and the complete history was therefore unobtainable. According to Dr. Kyle, the "special causes of such reflex nasal phenomena as sneezing, dyspnea and epistaxis, when emanating from the sexual organs, are continued abuse of their physiological function, the disturbances attending the advent of puberty, pregnancy, menopause, chronic affections of the uterus and ovaries and all abnormalities of menstruation." Sneezing and cough are frequent in both males and females not alone in coitus but even upon erotic thoughts. Dr. Hobbs, of Atlanta, and Dr. Mackenzie, of Baltimore, have recorded several interesting cases in this connection. These conditions may be present before or after the consummation of the sexual act or may be occasioned by amatory associations with the opposite sex. Engorgement of the nasal mucosa from stimulation of the erectile tissue of the turbinals and the consequent more or less complete occlusion of the nares during erotic excitement is in truth a physiological function. Under sexual excitation not only does the erectile tissue of the generative organs become engorged but the same structure in the nipples and anterior nares is also stimulated and thus produces the symptoms of obstructive respiration. In some individuals this occlusion is but slight and barely noticeable while in others it will amount to a complete occlusion of the choanæ and a resort to temporary mouth-breathing. In the lower order of vertebrates,

particularly in dogs, this occlusion of the nares through turgescence and stimulation of the erectile tissue is always present when under sexual excitement. This is evidenced by the fact that in such animals respiration through the nares is impossible while under such stress and they are therefore compelled to refrain from food and drink.

When we consider the pathological changes which occur in the nasal mucous membrane when the generative organs are in a condition of stimulation it will readily be seen how the phenomena of dyspnea, epistaxis, sneezing, etc., and even atrophic rhinitis with ulceration are produced. The elevation of the arterial tension and increased blood supply is followed in a short time by a paresis which permits a rapid dilatation of the vessels and consequent stasis. Superimposed as the nasal mucosa is upon unyielding bony or cartilagenous structures this infiltration causes it to protrude inward, which, combined with the erection of the turbinal tissue, produces a constriction of the lumen of the anterior nares. If this hyperemia be long continued, or frequently repeated, the overnutrition of the parts produces connective tissue changes and a condition of true hyperplasia results. This is not a hypertrophy, as it has been so frequently but incorrectly described, since, while there is an increase in the physical form there is no increase in the physiological functions. As a still further result of this hyperplasia the individual cells are pressed upon and local death of the part results, which in time is followed by cicatricial concentration or even chronic ulcerative processes.

The direct nerve trunks through which the above influences are reflected from the generative organs to the intranasal tissues are difficult to determine; but the assertion of the physiologist who claims that these phenomena are but local manifestations of the general stimulation of the entire vasomotor system through sexual excitement, is scarcely tenable, since this hypothesis accounts only for the accelerated blood supply and increased arterial tension. Nor is the theory of hysteria, to which Bosworth inclines, capable of furnishing satisfactory explanation. In speaking of nasal reflexes this author says "the neurotic habit is a prominent factor in the production of these disturbances in many cases and always requires attention." The fact that neurasthenia is most frequently due to sexual excess is admitted; and it is also seen that the nasal phenomena may exist without either hysteria or neurathenia and are indeed in some cases but increased activity of the normal physiological functions of the nose. It is much more probable therefore that what direct nerve supply there is, is derived through the sphenopalatine branches of the superior maxillary nerve. This nerve passing as it does through the sphenopalatine ganglion probably contains the vasomotor fibers which are distributed to the erectile tissue covering the entire inferior turbinate, the posterior ends of the superior and middle turbinates and a portion of the septum.

The conclusions to which it is desired to direct attenion are the following:

1. That turgescence of the nasal mucous membrane always occurs during the procreative act.

2. That there also exists a marked degree of hyperesthesia of the nasal mucous membrane at such times.

3. That a more or less marked periodical engorgement of the nasal mucosa occurs in females coincident with menstruation.

4. That this same engorgement also occurs periodically during pregnancy, demonstrating that it is not dependent upon the menstrual flow.

5. That operations which destroy the functions of the generative organs cause the nares to return to the state which existed prior to the advent of puberty.

6. That in lower animals sexual excitement is always accompanied by occlusion of the nares.

7. That this engorgement in the human family may result in epistaxis or hydrorrhea.

8. That the continued overstimulation of the nasal mucous membrane from sexual perversion results in a relaxation of the same through vasomotor paresis.

9. That the long-continued hypernutrition from frequent or inordinate congestion will in time produce permanent tissue changes either of hyperplasia or atrophia.

10. That these conditions are in no way dependent upon hysteria or neurasthenia.

SEPTIC THROMBOSIS OF THE FEMORAL VEIN, FOLLOWING INFLUENZA.[1]

BY D. F. TALLEY, M.D.,
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The case I wish to report is one of septic thrombosis due, presumably, to an attack of influenza from which the patient was recovering when the phlebitic trouble occurred. Before reporting the case, I will quote from Finkler, in Twentieth Century Practice of Medicine, the following:

"The blood vessels have been found greatly changed in influenza. On the part of the venous system, phlebitis and thrombosis frequently make their appearance during the period of convalescence. According to the report of the collective investigation committee, disease of the femoral vein was, with few exceptions, present much more rarely than that of the anterior tibial and brachial. The cases were not often fatal; twice death was due to hemorrhagic infarction of the lung; in one instance it occurred as a result of amputation of the thigh for gangrene. It is very likely that the involvement of the veins of the lower extremities may be due to cardiac debility. Leichtenstern regards the fact that this change may

[1] Read before the Southern Surgical and Gynecological Association, November 15, 1903, at Atlanta, Ga.

be of a very acute character, as a special peculiarity of this venous thrombosis. He reports a case of thrombosis of the veins of the arm occurring in a robust physician, and accompanying a severe cardiac influenza, which led to a marked swelling and a blue discoloration of the whole extremity within twenty-four hours. He refers the fact that gangrene has been observed in cases of thrombosis of the veins to this obstructive change. As this occurs so very rarely, Litten believes that in a case reported by the collective investigation committee, the gangrene of the thigh had probably been erroneously referred to a venous thrombosis. According to Leichtenstern, however, it is repeatedly mentioned in the history of the disease that the arteries are not occluded in these cases but that, on the other hand, the venous thrombosis leads to grave changes in the extremity affected. We may mention as belonging here, an observation of Johannsen, which relates to a thrombosis of the veins of the right arm and of the right lower extremity. At the amputation of the thigh for gangrene, all of the veins were found to be filled with deeply extending, firm thrombosis: the femoral artery, on the other hand, was the seat simply of atheromatous degeneration. In influenza we meet with a spontaneous thrombosis of the arteries, such as has been regarded by Virchow as marantic, and which has been met with hitherto chiefly in the course of typhoid fever. One of the first cases of the kind is described by Leyden. It has its seat by preference in the popliteal artery, and makes its appearance most frequently during the period of convalescence. This accident leads to a grave condition of gangrene of the lower extremities, which has been described by Eichhorst, Gerhardt, and Kämmerer, and which occurred not only in aged and decrepit individuals, but also in the young and robust. Occlusion of the arteries, like thrombosis of the veins, occurs symmetrically, involving the corresponding vessels on both sides. The symptoms of an arterial occlusion in influenza do not differ from those of a similar condition occurring at other times, and consist in a sensation of cold and anesthesia of the extremities, absence of pulse beat, ocasionally violent pains, bluish-black discoloration, and mummification of the parts involved.

"The prognosis is unfavorable, death occurring usually even after amputation. Septic symptoms of a general kind frequently make their appearance after arterial thrombosis. In the German collective investigation report, eight cases of arterial thrombosis are mentioned. Four of these were unilateral, involving the popliteal artery: the fifth, which was also in the popliteal artery, was accompanied by symmetrical gangrene of both legs: the sixth case was one of thrombosis of the femoral artery, with gangrene: the seventh, thrombosis of the brachial artery: and the eighth, of the cerebral arteries. In addition to this, occlusion of the arteria centralis retinæ and of the arteria fossæ Sylvii was observed, but the condition in these cases was due to an embolic closure of the vessels accompanying chronic endocarditis.

"As to the cause of these thromboses, we must, of course, bear in mind, that in degenerative diseases of the cardiac muscle the formation of the thrombus occurs in the right as well as in the left ventricle, as has been frequently demonstrated post mortem. Besides this, emboli will be disseminated by an acute or chronic endocarditis, or arteriosclerosis of the aorta may be the cause of the formation of thrombi. In other cases, the already existing senile changes will be so aggravated by the influenza that the formation of thrombi can take place. Primary or spontaneous arterial thrombosis is dependent, von Leyden is inclined to think, upon disintegration of the white blood elements. This increases progressively from the commencement of the disease to the crisis, and also, beyond. Thus we must place these thrombi formations in line with the action of the blood plaque thromboses in various cases of poisoning (phosphorus, chlorate of potash). Possibly an extraordinary spasm of the vessels may also play a rôle here, as is assumed by Gerhardt. This becomes plausible by the observations made on the spasmodic action of the peripheral blood vessels, as described especially by Petrina, who noted the occurrence of temporory changes in temperature from cold to warm of a finger or a toe, in the course of influenza. The hemorrhagic symptoms in influenza, which are the evidence of intense impression of the poison of influenza on the blood vessels, are in a high degree interesting. Attention has already been drawn to hemorrhagic encephalitis in speaking of cerebral diseases; large and small hemorrhages are of not very infrequent occurrence in this organ. But we also meet with a variety of hemorrhages in other parts. Pick has described a case which ran a rapid, short course under the picture of a hemorrhagic diathesis. Bleeding from the nose, chiefly in young individuals, has been frequently observed and described by Peiper. In other recorded cases violent epistaxis has occurred only late in the course of influenza. The sputum frequently presents an admixture of blood in the shape of streaks and dots, and true hemorrhage of the lungs has not infrequently been observed, even in the absence of tuberculosis."

I have seen violent attacks of hemoptysis in some cases of chronic pneumonia, occurring at long intervals; and in another case bronchial hemorrhage has now lasted about four years, almost without cessation. Hemorrhages into the skin in the form of petechiæ have been repeatedly described, and also hemorrhages of the tympanum and the frequent admixture of blood in the purulent exudation from the ear are recorded. Brando mentions three cases in which such hemorrhages occurred in the absence of otitis media. Helling twice met with an initial hematemesis in cases in which no suspicion of gastric ulcer was present.

Intestinal hemorrhages occurring in otherwise healthy individuals after an attack of influenza have also been reported. As a rule, these bloody evacuations continued for a few days, and were then followed by mucous stools. Keilmann and Dietrich described these in the gastric form of influenza. Cases of hemorrhage from the kidneys in the form of hematuria have been described by Eichhorst; or in the form of hemoglobinuria by Baumler; slighter admixtures of blood in the urine were found in some cases of nephritis. The menstrual flow during the attack of influenza has in many instances been reported to be more violent than usual, and of longer duration. Haken observed violent metrorrhagia in certain cases in which no tendency to hemorrhages of this sort had been formerly present, and Helling observed a woman of forty-nine years of age, who had ceased to menstruate for five years, and who had no uterine disease, a hemorrhage from the uterus during an attack of influenza.

In the same work Sansom has the following to say concerning influenza as a cause of phlebitis: "Inflammation of the veins arises in the course of some infectious diseases.

"This is all that can be positively asserted about the relation which the phlebitis bears to the original disease. Proof is wanting of its being a direct result in the system of the action of the specific poison, whose general effect gives the name to the original disease. But, on the other hand, it has never been proved that it is due to any diverse or even secondary infection. For the purposes of clinical comprehension, it is best to consider it *a specific inflammation arising in the course of infectious diseases, and probably caused by the same morbid agency as the general disease in which it is encountered.* In most infectious diseases it is possible to meet with phlebitis, but it is only necessary to select a few of these for clinical study. This form of phlebitis is only too often observed in epidemics of influenza. It is sometimes, only rarely though, met with in sporadic cases, a fact which would seem to show that a certain amount of virulence in the poison is a necessary factor. In the severer cases which occur in epidemics the phlebitis appears just when the temperature tends to become normal. Other complications, such as otitis, endocarditis, or nephritis may have preceded it. The pulmonary complications seem to be those which are particularly favorable to the production of phlebitis. Bronchitis and bronchopneumonia appear most prone to cause this further complication in influenza. In these cases it is when convalescence has set in, that the phlebitis appears. It most often attacks the lower limbs and undergoes rapid evolution. The pain is severe, but disappears comparatively quickly.

"The edema is marked, and rapidly mounts the limb, all the indications pointing to an early venous obliteration. The inflammation has little tendency to affect both limbs; when it does so, the second outbreak is benign in character. When once the veins have become affected, the disease seems to lose its virulence; both the local and the general symptoms seem to be checked. Very rarely is this phlebitis followed by fatal morbid phenomena. If the influenza be mild, as in sporadic cases, the phlebitis, when it occurs, is also mild. In such cases it generally attacks the calf and saphenous vein, and disappears comparatively soon.

"One peculiarity of the phlebitis of influenza is its proneness to spread in the organism in patients already the subjects of other debilitating diseases. Cancerous cachectics, chlorotics and consumptives exhibit this peculiarity of the disease. Influenza is also specially prone to reawaken neuralgic pains suffered in times past by patients who have had some other form of inflammation of the veins. In influenza the pains recur with pronounced neuralgic character. But this may be the extent of the venous mischief, not amounting to true phlebitis, for the symptoms disappear as soon as the influenza is cured. In general, the large veins are the ones that are attacked in influenza, and consequently the pathological sequelæ are often persistent and troublesome. They are rarely fatal, and embolism is the exception. The reason of this may be that, when the large veins are thus attacked, more care and attention are bestowed on the cases, as the symptoms are more grave."

Case.—Miss M. B., single, aged thirty-one years, by occupation a nurse; had been in good health for the past eleven years. She had typhoid fever when twenty-five years old, but no phlebitis following, and was sick three weeks with influenza before any sign of phlebitis arose. The temperature during the attack of influenza went to 104.5° F. showing an intense infection. She had severe pain in left side of the chest one week before phlebitis came on, and when the latter occurred the chest pain was relieved. The first pain she had with the phlebitis was in the region of the psoas muscle. It then extended down the thigh and the leg, and the thigh commenced to swell. Soon after this she began to have hard and irregular chills, followed by very high temperature. She went on in this way for a week before I saw her, when Dr. H. L. Martin sent her to the infirmary for an operation. When I first saw her she complained of severe pain in the region of the psoas and iliacus muscles. There was considerable swelling of the thigh and marked induration and tenderness along the femoral vessels. There was also discoloration, which was of a dark or venous color. The case at first impressed me as being a psoas abscess pointing in Scarpa's triangle, although Dr. Martin had already made the diagnosis of phlebitis. I watched her closely for four days after she entered the Infirmary before I decided to operate. During this time she had one or two chills daily, with a sharp rise of temperature to 104° or 105° F.; with marked signs of prostration. After keeping her under observation for three days I

decided that it was a case of septic phlebitis, and determined to operate the next morning. At this time the venous discoloration was quite marked; she was getting very weak; all her secretion were sluggish; the tongue was badly coated, and every indication pointed to an early death, unless she was relieved of the source of poison.

On the morning of the operation, while she was being prepared, she had the hardest chill as yet, and her temperature rose to 106° F. The case appeared so urgent that I did not think it wise to delay the operation, so she was put on the table and operated on while her temperature was 106° F. in the flexure of elbow, which means that her actual temperature was at least 107° F. I cut down over the femoral vein and expected to find pus there under the deep fascia around the femoral vessels. After going through this fascia and exploring thoroughly, no pus was found. I then decided that all the trouble must be in the femoral vein, so I dissected it out, and just at the entrance of the long saphenous vein I found evidences of a clot. The saphenous vein was ligated and cut loose from the femoral, and the contents of the femoral examined through the saphenous mouth. The femoral was found completely filled and occluded with a rather firm, grayish, dirty clot. I then slit the femoral up to and a little under Poupart's ligament and removed the clot, and ligated with chromic catgut above the incision. The vein was then slit for three inches below the entrance of the long saphenous and the clot removed. A long probe was then passed down the vein for at least six inches, but the thrombus extended further, and not a drop of blood came through after removing the probe. The vessel at this end of the slit was then ligated and the wound irrigated and packed with sterile gauze, wrung out of hot carbolized solution.

In two hours and a half after the operation the temperature had gone down to normal, a fall of 7½ degrees. This sudden reduction was rather alarming, but as the patient's general condition seemed to be getting better, there were good hopes for reaction. The limb was elevated and surrounded with blankets and hot bottles, and her whole limb was kept perfectly warm for two weeks. There was no sensation in the foot, and for some distance above the ankle after the operation, and in a few days the toes began to shrivel and take on a dusky hue. There were three or four spots on the foot that commenced turning black and I feared that gangrene was setting in that would involve the whole limb. However, in a few days a line of demarkation formed about these spots, and then I felt some hopes, for the first time, that most of the limb would be saved. After the operation the patient did nicely, and her temperature remained about normal until the third day, when she had a chill, and it rose to 103° F. I thought then the small portion of clot left between the ligature and the external iliac vein was giving trouble, but she soon recovered from the chill and had no further evidence of infection.

My treatment in this case and the result so far as I can learn are entirely unique. Very little is found in surgery as to treatment in septic phlebitis outside of opening the abscess, which is usually caused by the infection. In Dennis' System of Surgery I find the following on treatment: "In case the superficial vein is involved, the prevention of septic infection and the dangers of emboli can be averted by an operation suggested by Dr. Lea, in which a needle is passed beneath the vein above and below the thrombus, and the vein divided. If the deep veins are involved and the septic thrombus is causing the symptoms of pyemia, amputation above the inflamed area is indicated to save life. The operation to be successful must be performed early, before the constitutional symptoms are well marked, and with every possible antiseptic precaution. Fortunately, such an emergency seldom arises.

The incision in the thigh became healthy in about ten days after the operation, and commenced filling with healthy granulations, and was entirely healed in a few weeks. The gangrenous tissue of the foot sloughed out, and the resulting ulcers healed slowly. The great toe had to be removed, but a useful foot was left. The patient left the city for her home in the country in April, about ten weeks after the operation.

I had Mr. Hall, of the Surgeon-General's office, prepare a bibliography of diseases of the veins, and he found only two reports of thrombosis of the femoral vein due to influenza, and the involvement of the vein occurred very much in the same manner as in the case I report. Of these two cases one is reported by Kozlovski, in the *St. Petersburg Gazette*, which was translated for me by a Russian scholar, in Washington, as follows:

"Peasant woman, aged forty-eight years; cook; of healthy family. Fifteen years previously had a child at term; no abortions. August, 1897, she had erysipelas of face, and was treated in Alexandrovski Hospital for the erysipelas. Present disease appeared four days after patient was discharged from the hospital. The symptoms were: Fever, general weakness, headache, vertigo, anorexia, catarrh, cough, dry at first and later accompanied by a small quantity of mucopurulent sputum; later, blood appeared in it. Present condition, September 22: Fever; skin dry and hot; no eruption. Lymphatic glands slightly enlarged. Tongue coated, white, moist. Fauces: Considerable hyperemia in spots. Lungs: Slight dulness on percussion in right middle axillary line below seventh rib. Breathing vesicular, somewhat metallic. Heart normal; sounds somewhat dull. Abdomen somewhat tympanitic; painful to pressure along colon; no appetite; stools regular. Liver projects some distance below false ribs; no pain. Spleen not enlarged.

Sexual organs: Left ovary enlarged. Urine: Acid reaction, 1.010 sp. gr.; straw-color; no sugar, albumin or casts. 2 P.M., temperature 99.1° F.; 6 P.M., temperature 101.1° F., pulse 100, respiration, 24.

"September 23 to 25: Temperature varied between 99° and 99.3° F.; pulse between 96 and 92. September 23, slight dulness over left lung, below, behind, and on the side; diminished vesicular breathing; crepitant râles. September 24, bronchial breathing; cough; small quantities of sputum, mucopurulent, at times bloody; stabbing pains in left side. The abdominal symptoms gradually diminished and vanished September 25. Examination for tubercle bacilli, September 23, negative. September 26 to 28, all symptoms ameliorated; appetite returned; lungs normal. Stitch in the side continued. Temperature varied between 97.5° and 99.3° F.

"September 29 (twenty-sixth day of disease): Temperature, 99.3° to 98.6° F.; pulse 88. Right lower extremity, in region of gastrocnemius muscle, increased in size; lancinating pain; movement in knee-joint painful and difficult. Skin in affected region livid; hard, tender cord in popliteal region; no edema of leg; no pain on left side. Gastro-intestinal functions normal. September 30: Swelling extended almost over the intire leg; no edema. October 1: Swelling increased; no edema. October 2: Small subcutaneous hemorrhages in lower portion of popliteal region. October 3: Swelling extended up the thigh, so that the entire right leg was involved; movements painful and difficult; skin over entire extremity very livid; under Poupart's ligament a hard cord is felt, painful to touch; no edema; considerable pain over entire leg. Oct. 7 to 19: Swelling gradually reduced; no edema at any time. Perceptible development of cutaneous veins of the extremity. Gradually improvement of symptoms. October 20 to 30: Patient gradually began to stand, then walk on right foot; at first with assistance. The pain at first experienced gradually decreased. October 30: Patient could walk unassisted and without pain. Temperature varied between 96.8° and 98.6° F. October 31: Patient discharged from hospital on request, and not seen again.

"Treatment consisted of absolute rest, with the leg raised, warm (boric acid) compresses, following preliminary inunctions (not rubbing) of blue ointment, etc.

"In this case we see venous thrombosis developing after influenza, and involving all the deep veins of the right lower extremity, sparing not even the femoral veins. This thrombosis appeared on the twenty-sixth day of the disease, when there was already improvement. Thrombosis developed on the twenty-sixth to the thirty-second day of disease. The temperature did not markedly increase, but on the fifth day it reached 100.7° F. The decline began on the ninth day of the thrombosis."

The other is reported by E. Leyden, as follows: "Last year I wrote a paper on arterial thrombosis following influenza. In the following brief communication I intend to complete my remarks on vascular obstructions following influenza. This remarkable disease, though on the wane, still claims so much of our attention as to make a completion of its pathology desirable. Indeed, its pathology is almost inexhaustible on account of the numerous complications and sequelæ.

"The venous affections following influenza have excited less interest than the arterial thrombosis, because they are less dangerous. The extensive injurious consequences of arterial obstruction which, in general, are much rarer than venous thrombosis, impart to them a special importance.

"The venous thromboses have been less studied. But they have received more attention in France, as I learn from a thesis by Dr. Chaudet. I shall first mention a case of my own observed in the Charité Hospital.

"Bertha R., a servant girl, twenty-two years old, was admitted January 16, 1893, to the First Medical Clinic, and discharged cured, March 20. Diagnosis: Influenza, with venous thrombosis of the left femoral vein. Anamnesis: Patient was taken sick January 13, in the evening, experiencing sudden cutting pain on the left side of the chest. The sputum looked brown. As she grew worse she came to the Charité Hospital.

"Examination: Patient is of strong build and well-nourished. Face much flushed. Complains of cutting pains in chest, but does not give the impression of a serious disease. Examination of the lungs: On the left side, behind and far down, moderate dulness over an area of the size of a hand's breadth; auscultation gives friction râles on deep inspiration; breath sounds diminished. Temperature, 100.4° F.; pulse, 120; respirations, 30. Urine dark, little albumin, no diazo-reaction (January 16). Treatment consisted of a hydrochloric acid mixture.

"January 20: Temperature at midday, 99.5° F.; evening, 99.9° F.; pulse, 104. January 26: Temperature in evening, 99.9° F.; pulse, 89. January 26, patient is pale and somewhat cyanosed; she complains of cramps in the left foot, so that she can move only with great pain. The whole left foot looks larger than the right; the skin is tense, edematous and a little cyanosed. The abdomen seems a little enlarged, but not sensitive. The pulsation of the femoral artery is distinctly felt on both sides, but in the inguinal regions a venous thrombosis can be felt, which extends upward beyond the Poupart's ligament, and is tender to the touch. Warm compresses; at night, sulfonal. January 29: Temperature in evening, 101.7° F.; pulse, 92 to 100. Moderate pain below Poupart's ligament. Pressure on the femoral vein less painful. Edema of the left lower leg. Expectoration scant, mucopurulent; on examination, no influenza bacilli. Urine, sp. gr. 1.030; no albumin. January 31: Temperature, 98.5° to 97.7° F.; pulse, 92. Skin and

conjunctiva are slightly icteric; liver not enlarged or tender. In urine neither bile pigment nor albumin. Edema of the left lower leg still present. The thrombotic venous cord above Poupart's ligament still distinctly felt; less so below Poupart's ligament. February 3; Temperature, 98.3° to 99.3° F.; pulse, 100. The edema of the left leg has decreased, but patient still complains of pain in it. February 7: The edema of the left leg has decreased. The venous cord still present, but not painful. February 10: Resistance above Poupart's ligament has decreased. The edema has almost disappeared. Steady improvement, and final cure."

EPICRITICAL REMARKS.

As the disease occurred just in the midst of a violent influenza epidemic, and its course (fever, affection of the lungs, prostration) conformed with the picture of influenza, this diagnosis is sufficiently confirmed. The venous thrombosis began on the fourteenth day of the disease, when a marantic state of the patient was impossible; besides, it began with recurrence of fever, which lasted four days, ended with crisis, and resembled throughout an influenza fever. The thrombosis of the femoral vein could therefore not be interpreted as a marantic thrombosis, but as a new development (sequela), which appeared under new febrile symptoms. The symptoms were clear, characteristic, but not severe; the disappearance of the thrombosis favorable and relatively quick.

The origin of the thrombosis cannot be ascribed to marasmus. I therefore think it can be explained in a similar manner as arterial thrombosis. "It is very easily possible to connect the remarkable phenomenon with the degeneration of the white cells of the blood, which increase from the beginning of the disease up to the fibrile crisis, and even after it, and then furnish extensive products of degeneration." (Blood plaque—thrombosis.)

The symptoms have been well described in the above-mentioned work (Chaudet). Professor Litten (cited in Chaudet's thesis) says (page 85): "In the venous system we meet phlebitis and thrombosis frequently during convalescence. With few exceptions it is the femoral vein, more rarely the tibial or cervicobrachial. I have collected 25 cases, but without special data of their course. Three cases terminated fatally; twice from hemorrhagic infarct of the lung; once from gangrene of the thigh, with amputation. But I think that in this case it was not a thrombosis of the vein, but of the femoral artery, as venous obstruction scarcely ever leads to gangrene of an extremity."

In a French monograph on influenza, by F. Teissier (Paris, 1893), venous thrombosis is described in detail. Page 117 says: "Influenza phlebitis is not at all rare. Besides the cases described abroad, I can mention five cases of my own. In two cases there was a bilateral phlebitis of the lower extremities; in both instances the venous thrombosis resulted from an influenza pneumonia. One of the cases (female) was especially interesting; her condition very serious. Both lower extremities were enormously edematous, pale and painful; just like phlegmasia alba dolens. As there existed at the same time albuminuria and an affection of the myocardium, which showed itself by irregularity and feebleness of the pulse and attacks of syncope, the diagnosis for a time remained undecided between a myocarditis and Bright's disease. But recovery followed after two months, under the influence of rest, tonics, and especially of subcutaneous injections of caffeine."

At the close, I add an interesting case of Dr. Orloado's of Athens (*Progrès Médicale*, 1890, p. 158):

"S. K., fell sick on December 14, 1891, from exposure to cold. General malaise, weakness, anorexia: at the same time coryza, facial neuralgia, which troubled him for eight days. A few days later, when the patient was already quite well, he was attacked in the evening with an intercostal neuralgia; he then experienced chilly and cutting pains at the base of the right lung, accompanied with slight cough. A pneumonia resulted, which lasted eight days. During convalescence patient suddenly felt severe pains, which extended the whole length of the right lower extremity; which was at the same time covered with numerous hemorrhagic spots of very livid hue, especially on the inner side. Three days later, swelled up enormously, and could not bear the least touch, especially in the direction of the saphenous and the crural veins. At the same time, numerous vesicles—the swelling extends up to the hip. The temperature variations were of a moderate grade only.

"In the night of June 15, patient suddenly woke up with a sensation of great distress and orthopnea; feeble pulse and general failing. By repeated injections of camphor, patient could be brought too again. On the next day violent fever, cough, expectoration.

"June 24: The phenomena of a very painful neuritis were found. On February 1, the left hip swelled up like the right one. To this was added, to complete the unfortunate circumstances, a phlebitis of the right basilic vein. This multiple phlebitis and the emboli greatly weakened the patient.

"Twenty days later the symptoms had abated, and the patient began to recover, only the swelling of the feet and the subcutaneous spots remained, and did not disappear until patient went up and down stairs."

My case was much more intensely poisoned than any of the above reported cases, and would have died in a short time had this septic clot not been removed. Unfortunately, the clinical charts of this case were lost, and I cannot give an accurate and detailed history of the temperature and pulse during her convalescence.

SPORADIC CRETINISM. OBSERVATIONS BASED ON SIXTEEN PERSONAL CASES.[1]

BY E. MATHER SILL, M.D.,
OF NEW YORK.

CRETINISM, or, as the French call it, *crétinisme idiotic avec cachexie pachydermique*, or as the English call it, infantile myxedema, is a condition of imperfect mental development or idiocy, with a corresponding lack of physical development or deformity, with marked disproportion between the different parts of the body, arising from insufficient or entire absence of secretion of the thyroid gland. In this definition the term cretinism included only those cases in which the arrest of development is due to thyroid disease in infants or children under fifteen years of age or in which there is an arrest of development of the gland before birth.

This condition differs from myxedema in the adult, in that in addition to the symptoms of myxedema there is an arrest of mental and bodily development. Some writers have made a sharp distinction between the endemic and sporadic form of cretinism, saying that the fontanelles close early and there is premature ossification of the phenobasilar in the former and myxedematous skin only in the latter form, but careful investigation shows this division to be artificial rather than real.

The disease is found sporadically in almost all parts of America, Europe and Asia. Although a comparatively rare affection.

The causes of cretinism may be any one of the following: (1) Absence of the gland; (2) arrest of its development; (3) fibrosis with atrophy of the gland substance; (4) conversion into goiter; (5) removal by operation.

When symptoms show themselves at birth, they are due to absence of the gland, but when the child is born healthy and begins to show signs of cretinism during the first few months or years of life it is evident that the gland must have been formed at birth and that later there was a fibrosis and atrophy of its substance, which Murray believes to be a replacement fibrosis.

Cretinism may develop in utero and cause the death of the child and the symptoms may be only partly developed at birth and become more marked later. The congenital varieties are very rare. Gärtner says a syphilitic mother can have a myxedematous child.

This disease occurs more frequently in the female than the male. Out of 14 cases which I have under observation, 3 were males and 11 females. From a series of 158 tabulated cases from different writers 57 were males and 101 females. Fletcher Beach found out of 116 collected cases there were not quite twice as many females as males.

Sporadic cretinism does not appear in two successive generations, since cretins of both sexes are nearly always sterile.

We have no evidence to show that children of parents who have subsequently become myxedematous are more liable to the disease than others, but the disease may appear in two or more children in the same family. I have now under my care one family where three of the children are cretins and have been under treatment since shortly after birth. The rest of the children are perfectly healthy and normal. I have another family where two of the children are marked cases of cretinism and the others enjoy perfect health.

I have noted in a number of instances the parents were cousins and I consider this to be more or less of an important etiological factor. All my cases have been of Russian or Austrian parentage. According to Kocher, whenever goiter or cretinism appear in the children, one of the parents will be found to have goiter and this is thought to be the first step on the road to cretinism, but it seems to me this must only apply to the endemic form, as it does not agree at all with my own observations as regards the parents of sporadic cases. The sporadic cretins rarely have goiter, in which they differ from the endemic form, over 60 per cent. of which have goiter. It is very rare in this country to find a cretin with goiter, and I have only seen two cases. Of 116 cases of sporadic cretinism collected by Beach 7 had goiter, and of 60 cases collected by Osler 8 per cent. had goiter. Out of 16 autopsies on sporadic cretins 14 had no gland and two were goiterous, showing how frequently the gland is entirely absent.

Cretinism is said to develop after measles, pertussis, typhoid, scarlet, and nephritis, and such cases are on record. But whether any one of the diseases had anything to do with the causation of cretinism is difficult to say.

Kocher also says that congenital or inherited cretinism is derived from the mother alone, whereas inherited cretinism appearing after a lapse of years is derived from the father alone, and his explanation is that the fetus and nursing infant is supplied with the normal thyroid secretion through the mother, but after the normal source of the thyroid function is cut off and the child is forced to rely on its own gland secretion, then, through failure of the gland to perform its function, disease develops.

Some of the theories which have been advanced explaining the presence or absence of the thyroid secretion of the body metabolism are the following: Seman believes removal of the gland secretion interferes with the full chemical development of the constituents of connective tissue so that these take on an embryonic character with excess of mucin. Mendel believes the secretion normally neutralizes certain toxins in the blood and when the secretion is suppressed toxins accumulate and excite symptoms. Patterson has two theories, one is that the gland secretes a substance which is essential to health and harmonious activity of the central and pe-

[1] Read at the January Stated Meeting of the City Hospital Alumni, New York City.

ripheral nervous system, and by want of this the nervous system is deprived of a substance regulating the distribution of mucin. The other theory is that the gland secretes from the blood material, which, by its retention, causes a form of toxemia. He believes the thyroid is an antitoxic gland, the function of which is to destroy toxic substances or render them innocuous.

Fagge believes the cause of cretinism is an infection. Reverdin, Kocher and others have shown that total excision of the thyroid gland in man is followed by a group of symptoms characteristic of cretinism or myxedema. A similar condition has been observed by Horsley in animals treated in a like manner in which he found mucin deposited in the subcutaneous tissue.

All these theories seem plausible and we must accept them at present as we have no means of disproving them, but I can hardly agree with Fagge in calling cretinism an infection.

I believe with Mendel, and with Patterson, in his second theory, that the thyroid gland gives off an internal secretion which has an antitoxic or neutralizing effect upon certain poisonous substances, which are formed in the body and that its action under normal circumstances is as a regulator of metabolic processes.

Symptoms.—The appearance of a cretin is so unique and characteristic that in a well-marked case, it can be recognized almost at a glance by those who are familiar with the disease. The early symptoms may be easily overlooked, however, and symptoms may show at birth or only after a few months or even years. The symptoms have been quite uniform and similar in the cases I have seen. Symptoms of maldevelopment are noticed by the parents usually about the sixth month, when it is found the child is not growing as rapidly as it should, does not develop mentally and has a peculiar swollen appearance of the face. As months go on it does not develop either physically or mentally, as do other children: it remains stunted in its growth, the bones being short and rachitic. The skin appears swollen but does not pit on pressure. This edematous condition is most evident where the subcutaneous tissues are lax, as in the eyelids, cheeks, neck, and especially in the supraclavicular spaces. The back of the hand and dorsum of the foot may be swollen. The hands are short and spade-shaped with enlargement of the thenar and hypothenar eminences. The face is rounded from the swollen condition. The eyes are widely separated, the nose is short and broad, depressed at the bridge, turned up at the tip and the nostrils dilated. The mouth is generally open and looks large, the lips being thick and everted, and the swollen tongue frequently protrudes. The ears are large and prominent. The complexion is pale or often of a peculiar yellowish-brown color, and the lips are opaque or cyanosed. The skin is dry and rough and cold to the touch, and the scalp is rough and often covered with dry crusts. The hair is coarse and fairly abundant, or it may be scant. The teeth are late in appearance and often carious. The neck is short and thick, and in the majority no thyroid is felt. The abdomen is large, prominent and tense. The temperature is one to two degrees below normal, and the pulse and respiration are correspondingly slow. These cases are as a rule anemic (and there may be arrest of development of the generative organs), and lordosis of the spine is frequent. Constipation is a marked symptom.

The mental symptoms are quite characteristic. The child when awake sits or lies languidly in one position and appears to take no interest in its surroundings, a great contrast to the activity of a healthy child. It can be roused by the sight of a familiar face, such as that of one of the family or by the sight of food, but when a stranger comes into the room it will often try to hide.

Young cretins are dull and inactive and evince great dislike to bodily activity. Some are so deficient in mental powers as to be helpless idiots, and some, as they grow older, remain in much the same condition as in childhood; they are able to feed themselves, use a few simple words, and are clean in their habits, but show no more intelligence than a healthy child of one or two years. Others are more intelligent and improve by proper education.

These little patients are apt to be shy, diffident and obstinate.

The expression of a cretin is usually stolid and fixed. Most cretins may be easily amused, but seldom laugh much. They nearly always sleep well and for longer periods than healthy children. The digestion is often impaired. The sight is generally good, although the eyes are not fully opened, but the hearing is often imperfect.

Cretins are very late in learning to crawl or walk, and often cannot stand alone before the fourth or fifth or tenth year.

An examination of the blood has shown a fetal state of the red corpuscles.

The severity of the symptoms is in proportion to the destructive disease of the gland. The less the amount of secretion passing into the blood from the gland, the more severe are the symptoms.

As regards the prognosis of this disease, I would say that the earlier in its course treatment is begun, the more favorable will be the ultimate result. When treatment is begun late intellectual development never becomes normal, and they never attain their normal growth.

Diagnosis.—Cretinism may be confounded with early rickets, infantile obesity, dwarfism, achondroplasia, edema of Bright's or cardiac disease, general lipoma and Mongolian idiocy, from all of which it may be differentiated without difficulty. In rickets there is a history of improper feeding, and the whole appearance is

different from that in a cretin; the child being bright and lively. Infantile obesity varies in that it is due to excess of fat, instead of a thickening of the skin. In dwarfism the child is normal in appearance with the exception of its small size. Achondroplasia is characterized by arrest of growth of the diaphyses of the long bones with enlargement of the epiphyses. In Bright's and cardiac disease the edema is real and pits on pressure and we have involvement of the kidneys in the one and disease of the heart in the other. In general lipoma we have none of the characteristic symptoms of cretinism. Mongolian idiocy, which is occasionally taken for cretinism, may be distinguished by the activity of the child and the smiling, observant countenance and the smooth non-myxedematous skin.

Treatment.—Surgical treatment by inplantation of the thyroid glands of an animal in animals and men has been successful in quite a number of cases, but after a time the gland becomes absorbed and symptoms of thyroidism reappear. It has been shown that all operations on the thyroid gland stimulate its activity for a while.

The discovery that the extract made from the thyroid gland of animals, sheep principally, could be used with the same effect on the body metabolism as the gland itself, has opened a new field for the treatment of this disease and has led to its general use in these cases, with results most gratifying. The effect, when given early, is almost magical and children hitherto doomed to a life of imbecility and affliction to their parents may become fairly intelligent citizens. The symptoms can in a great measure be entirely relieved by the continued use of the extract. The patient grows rapidly, both mentally and physically. The face assumes a normal appearance. Trophic disturbances diminish. Visceral disturbances disappear. The hair grows glossy. The secretion of urine increases. Red nucleated cells appear in the blood. The temperature rises. The total quantity of blood increases and there is a transient leucocytosis, so that usually within a year after treatment was begun, the child's body is that of a normal infant or child, and the intellect is rapidly awakened from an imbecile state to that of moderate mental activity. In older patients the treatment is not so effective.

Chemical physiologists have been searching to find the active material in thyroid extract. Some believe it to be a nucleoproteid; others a crystalline substance called thyro-antitoxin (Fraenkel); others believe it to be a compound which they have separated from the gland and which contains a large percentage of iodine in its molecule.

It has been my practice to start with one grain of the solid extract a day, best given in divided doses, and gradually to increase the dose until a point is reached where there is a rise of temperature or the pulse is unduly accelerated, then keep the dose just below this point and give in divided doses with the meals, increasing the dose in accordance with the child's body-weight. I have given as much as 15 grains a day with no untoward result.

After symptoms disappear two to three 5-grain tablets a week is usually sufficient to control the disease.

In conclusion I would say, this disease seems to be as yet not well understood and there is a great diversity of opinion as to the effect of the presence or absence of the thyroid secretion upon the body metabolism, but I think all agree that it is a most important and vital secretion and is essential for the proper regulation of metabolic processes.

The majority of cretins, if seen early and given thyroid extract systematically, will be entirely cured or relieved of symptoms, but treatment must be kept up more or less regularly for a lifetime. Cretins may live without treatment to the age of sixty years, but this is rare and most cases die before thirty years of age.

NOTES OF CASES.

Case I.—Fanny W., aged six years; June 16, 1902. Family history negative. Personal history: When six months of age mother first noticed child was not growing or developing as other babies, but was dull and stupid. Her face looked swollen and the tongue protruded slightly and she could not sit alone. This condition got gradually worse and the abdomen became enlarged. When first seen was three years of age and had the typical appearance of a cretin. Was put on Parke, Davis & Company's thyroid extract and has improved rapidly; now, at six years of age, is almost normal.

Case II.—Gussie K., about eight years of age; January 8, 1905. Family history negative; parents Austrians. Personal history: A few days after child was born mother noticed enlargement of thyroid which got gradually larger as the child grew. When one and one-half years old could stand and walk a little. When six years old could talk a little but could not be understood. Always had a rather large abdomen. When five years old began taking thyroid extract and since then has grown rapidly and improved mentally. Has been going to school for a year and is now in the fifth grade. The goiter is diminishing in size.

Case III.—Yetta K., aged fifteen years; sister of Gussie K. (Case II); January 10, 1905 Family history negative. Personal history: Child perfectly normal in appearance until nine months of age, then was weaned from the breast. Mother now noticed child's head was very large as well as the abdomen. The legs were kept crossed all the time. The child became dull and stupid and slept a good deal; could not stand or walk until nearly two years of age. Began to take thyroid extract when six years of age and began to say a few words when ten years of age. Now, at seventeen years, she is almost

an imbecile, but says a few words and has a characteristic way of scanning speech. She does housework, laughs and smiles in a foolish way, and can say her A B C's in a sing song voice, but that is about all. She cannot even write her name. She has a large goiter. Her hair is coarse, skin dry and rough and yellowish in color. Talks very slowly and it is hard to tell what she says. Has fully developed breasts and genitals and the development of a woman past puberty. She is 51 inches tall. Does not go to school.

Case IV.—Mamie K., aged five and one-half years; June 17, 1903. Family history: Sixth child; mother was sick most of the time while carrying the baby and confined to the bed a good deal of the time with pains in the abdomen. The mother developed goiter shortly after the birth of the child. The other children are all healthy. Parents are from southern Russia. Personal history: Almost immediately after the child was born the mother noticed it was yellow, the face was swollen or very fat; the abdomen was very prominent, the hair appeared to be growing down to the eyebrows, covering the forehead and giving the child very much the appearance of an ape. The hands and feet were always cold and the child cried a good deal and at that time got out of breath and blue in the face. Her tongue always protruded from her mouth. Patient was first seen by Dr. H. Koplik, when three weeks old and put on thyroid treatment, under which all symptoms improved rapidly, to appear again when treatment was discontinued. She has always had a swollen appearance of the face; the eyes are half closed and sore most of the time. She shows lack of interest in her surroundings, seldom laughs, is shy and obstinate and is constipated most of the time. Her temperature is two degrees below normal and her hands and feet are cold. This was the condition after nine months without treatment. She is now over seven years of age, can say only two or three words, is 39 inches tall and is taking 12 grains of thyroid extract a day. She is improving, although slowly, and is much better than when I first saw her.

Since reading this paper this child has improved wonderfully; has lost her shyness; has a healthy appearance, with rosy skin and is bright and smiling and talks and plays a good deal with the other children and is growing rapidly.

Case V.—Florence F., Feb. 1903, aged seven months. Family history: Father and mother cousins. First child. Personal history: Almost since birth child has been rather stupid acting and has not grown well. At six months mother noticed especially the large protruding tongue and large abdomen, also the swollen appearance of the face. Child had been nursed. When first seen, at seven months of age, was maldeveloped and looked rachitic. Was not seen again until ten months old and then had the characteristic appearance of a cretin. The child had not developed any; the face looked swollen, the tongue protruded, the abdomen was large and tense, the ears were large; the hair thin, eyes partly closed, extremities were short and hands spade-shaped; skin yellow and wrinkled, expression very stupid; could neither stand, sit nor creep; no thyroid felt. Symptoms improved under thyroid treatment, but the child got an enteritis during the summer while in the country and died at the age of fourteen months.

Case VI.—Phillip S., aged eleven months (January, 1904). Family history: Mother and father were second cousins; this was their first child. Mother has slight goiter. Child was born at seventh month of pregnancy and was a difficult labor, but no instruments were used. Child's head was very large at the time of birth. Personal history: Child was very susceptible to colds and suffered from bronchitis most of the time. Abdomen was very large but extremities were small. The child at no time showed any intelligence and it had the appearance of an idiot. The child was nursed until eleven months old and then was put on modified milk. It was seen first at this time. In June child contracted lobar pneumonia and in a few days both lungs were involved and the child was sick for a month but finally recovered. During all this time it ran a low fever. In the summer the mother took it to the country where it got a severe diarrhea which resulted in its death at eighteen months of age.

When child was first seen it appeared markedly rachitic, with widely open fantanelle; only one tooth, open mouth with tongue protruding; large ears, short extremities, skin of a brownish-yellow color; could not sit alone; large abdomen, idiotic expression, short snub-nose with depressed base; face looked swollen. Was put on thyroid and symptoms improved.

Case VII.—Fanny M., aged one year eight months (June 28, 1903). Family history negative. Personal history: Nursed 1½ years. When child was only a few months of age mother noticed that it seemed stupid; was not like her other children, and seemed to take no interest in its surroundings; later on, when child was a year old, the tongue was noticed to protrude and there was always a swollen appearance of the face, the child was pale and cold and had a cold most of the time and grew very slowly. When first seen at one year and eight months of age, the above described appearance was present; it could not stand or sit alone and could not say a word. The child took treatment at this time for a week or so and was then lost sight of until January 5, 1905, when the above noted symptoms were more marked; child could say only mama and papa; could not walk but could stand alone with difficulty, legs were very bowed. It was very unintelligent and would smile in a foolish way. Now on thyroid treatment, and is improving rapidly.

Case VIII.—Dora S., aged sixteen months (January 9, 1905). Family history: Mother had a severe hemorrhage before becoming pregnant the last time. Otherwise healthy. Personal history: Patient normal until fourth month, when mother noticed protruding tongue, and large abdomen; the child was more or less blue and cold, and the face looked swollen. These symptoms steadily increased until patient was thirteen months old, when she was seen. She has been taking thyroid extract for three months and all the symptoms have improved markedly. The child now laughs and smiles and looks healthy and happy, with the exception of its large tongue, somewhat enlarged abdomen, no teeth and inability to creep or stand alone The tongue does not protrude so much and the abdomen is smaller than it was.

Case IX.—Sarah S., aged nineteen months (January 9, 1905). Family history negative; fifth child; others normal. Personal history: A few months after child was born mother noticed protrusion of tongue and used to slap it to make the child keep it in the mouth, but this treatment naturally did no good. The child has grown much more slowly than the other children, has a large head and large abdomen and rather a stupid expression with tongue hanging out of the mouth. When seventeen months old could say mama and papa. Could stand alone and walk a little by holding on to chairs. Has not progressed any since, either mentally or physically; parents refuse to take thyroid for child.

Case X.—Lilly G., aged thirty-four months (January 11, 1905). Family history: Eighth child; parents and other children healthy. Personal history: Child normal at birth, but has always been constipated. When the child was one year old mother noticed its mouth was kept open and the child had a very large protruding tongue, which looked red and swollen and the face and eyelids had a rather swollen appearance. When eighteen months old could stand alone and at thirty-two months could say papa and mama but has not learned to say anything else. Last year had pneumonia. Child is fat and edematous-looking, skin is pale and yellowish, extremities short, hair thin, hands short and spade-shaped and skin covering them rough and wrinkled. Nose short and turned up at tip, depressed at base; lips thick and everted; height 30½ inches. Very timid and shy and cries when approached by a stranger. Has just been put on thyroid treatment.

Case XI.—Harry G., aged nine years (August 26, 1903). Family history negative. Personal history: When about one year old, the mother began to notice that the child was not growing as her other children had grown and seemed very dull and stupid and kept its large tongue sticking out of the mouth most of the time, the abdomen was large, but the extremities were small; the eyes were partly closed, the skin was rough, the hair dry, coarse and thin; the child did not have any teeth and could not sit alone and never smiled. Its ears were very large and it was constipated. At this time it was put on the thyroid extract treatment and has been taking thyroid extract, more or less, regularly since. The improvement has been marked; the child has grown rapidly, has become intelligent, goes to school and appears like other children. Is now eleven years of age.

Case XII.—Sadie G., aged seven years (February 3, 1903). Sister of Case XI. Family history: Elder brother a cretin. Personal history: When about six months old, the large abdomen, swollen appearance about the face, and dull expression attracted the mother's attention and the child was brought to the physician, who at once suspected the trouble, and as the child got steadily worse she was put on thyroid and at once began to improve; has been on thyroid ever since. Has grown well both mentally and physically and is now the equal in all respects of a normal child of her own age.

Case XIII.—Benj. G., aged three and one-half years (August, 1903), brother of case XI and XII. Family history negative. Personal history: At about a year of age began to show marked symptoms of cretinism, but at six months had yellow, dark-colored skin, was always sleepy and dull and did not care to play. Eyes were partly closed and mouth was open; hair was coarse and abdoment prominent, face looked swollen. Was put on thyroid and improved rapidly, but never seemed to get perfectly normal. When four years old died of lobar pneumonia.

Case XIV.—Sarah G., aged eight years (August 19, 1904). Family history negative. Personal history: Child has always been very much stunted and backward in learning to talk and walk; talks very little now; has a large head, swollen-looking skin, partly open mouth with tongue protruding slightly; large abdomen, short extremities, semi-idiotic expression. Says only a few words and speaks very slowly. Is about the size of a child three or four years old and is very shy. Mother has noticed these symptoms for several years but the child has not been under treatment. Her skin is of a brownish-yellow color, and her hands are spade-shaped. There is slight improvement since she has been taking treatment.

The thyroid gland did not appear to be present in any except the goiter cases.

Three other cases which I have seen, two girls and a boy, all under two years of age, have been lost track of and cannot be found.

Since reading his paper I have seen two more cases:

Case XV.—Eva P., aged twenty-two years (March, 1905). Family history: Father and mother first cousins. Four other children, all well. Personal history: Height now 40½ inches, weight 50 pounds, pulse 52 to the minute, cold

extremities, waddling gait, yellow, edematous, wrinkled skin, large head and abdomen, eyes far apart, broad nose depressed at base, turned up at tip; very affectionate but shy; idiotic; only says a few words; never goes out of the house. Very short extremities. Fatty tumors in supraclavicular region. First teeth at five years. Could walk a little by holding on to a chair when ten years of age, and could say a few words at that time. Has never been on thyroid treatment except for the first two years.

Case XVI.—Julius B., aged five months (April 20, 1905). Family history: Second child, first child normal and well. Personal history: Child small at birth and does not weigh any more now than he did then. Mother noticed shortly after birth that the child's skin was very yellow and wrinkled like that of an old man. The skin was very loose upon the body, extremities short, nose stubbed and flat, eyes far apart, lips thick, tongue large and slightly protruding; child had difficulty in nursing on account of the size of the tongue. These symptoms have become steadily worse, the child takes not interest in its surroundings, has a cold most of the time and the extremities are always cold; was never known to smile; hair is coarse and scant and scalp is scaly and seborrheic. Fatty tumors in supraclavicular region.

This is evidently a congenital case.

MEDICAL PROGRESS.

SURGERY.

Conservative Treatment of Protracted Cases of Acute Otitis Media Purulenta, with its Complications.—A. Wiener (*Med. Rec.*, April 8, 1905) expresses the view that the modern tendency is to be overhasty in performing radical mastoid operations in acute otitis media, and describes six cases in which paracentesis of the membrane and careful treatment served to render more severe measures unnecessary. The author makes a free incision through the posterior superior portion of the canal and the entire posterior portion of the drum, using a sickle-shaped knife for the purpose. All pent up secretion is immediately blown out with the Politzer, and the parts are then most carefully wiped out with absorbent cotton until the ear is as clean as it is possible to make it. A drain of iodoform gauze wet with a 10 per cent. solution of liquor Burowii is inserted, and an occlusive wet dressing of the same solution is placed over the entire ear. Attention to the general powers of resistance by suitable measures is most important.

Treatment of Pyelitis.—H. A. Kelly (*Med. Rec.*, April 8, 1905) points out the great importance of recognizing and treating early and mild cases of pyelitis so that the disease may be checked before it has progressed to a serious degree requiring radical operations. The following practical deductions are offered: (1) It is important to take cognizance of a pyelitis of any grade whatever, as it may at any time become a menace to the functional value of the kidney, or even to life itself. (2) The severer grades of the affection are often the sequels of a milder pyelitis of long standing. (3) The first step in the investigation is to determine the extent of the affection by estimating the amount of pus in the urine and the relative number of organisms. (4) It is important to determine the cause of the infection, which is often of a mechanical nature, and therefore easily relieved. (5) By removing the cause the disease may either be cured or so far benefited that a subsequent complete relief by means of local treatments is easily brought about. (6) The milder forms are best treated by rest, abundant water, urotropin. (7) If there is not a speedy improvement, the next simplest plan of treatment is the catheterization of the kidney every two to four days for the purpose of evacuation, distention of the pelvis, irrigation and instillation. Boric acid and nitrate of silver are the best drugs in this connection. (8) Improvement should be measured by the disappearance of pus from the urine and the diminution in the organisms, taking, say, three platinum loops as the measure in conveying the infected urine to the agar. (9) A patient improved but not cured (complete absence of bacteria) should be watched in the intervals of treatment and guarded with especial care in case of any intercurrent disease. Should such a disease supervene, urotropin is a good prophylactic. (10) The severer forms of the disease may be treated by irrigation, which often brings great temporary relief. As a rule, however, the kidney must be opened and drained; if it has been extensively diseased, remove it.

Anesthesia by Water Injection.—J. Rawson Pennington (*Journal A. M. A.*, April 8), in selected cases, has used normal salt solution and sterile water for local analgesia in minor rectal operations. Following the suggestion of Heinze, of Dresden, he has used normal salt solution instead of pure water to avoid the irritation sometimes caused by the latter. In some cases he has added eucain lactate and adrenalin to intensify and to prolong the analgesia. He also had tests made to determine the influence of such solutions on normal tissues, and finds that when isotonic with the blood the best effects are produced. He gives a formula and method of making up the solutions. He has employed them in operations for various types of hemorrhoids, polypi, anal prolapse, fissure, fistula, ulcerations, abscesses, sacral dermoids, lipomas, condyloma and secondary operations for colostomy. He has operated altogether in about 75 cases with local analgesia, and the pain has been usually less than under general anesthesia. He considers the method described as a valuable advance, enabling patients to receive treatment at home or at the physician's office in many cases and without interruption to ordinary occupations and business, instead of going to a hospital, being laid up and losing many days or even weeks of time.

Enterostomy.—J. W. Long (*Am. Med.*, April 8, 1905) maintains the following important measures are accomplished by enterostomy: (1) Drainage of gas and feces from the intestines. (2) Relief of distention, pain, vomiting and toxemia in mechanical obstruction. (3) Depletion of the inflamed bowel and peritoneum in septic conditions; the intestinal paralysis and sepsis are also overcome. (4) Protection to the peritoneum, as in typhoid perforation. (5) Nourishment to the patient by making an artificial mouth. The author considers the subject under these heads and concludes enterostomy is always a life-saving measure, never in operation of choice. It is never indicated when a more ideal surgical procedure is feasible. In the hands of an experienced, carefully trained abdominal surgeon, capable of dealing with grave emergencies, an enterostomy is rarely resorted to; but the better the surgeon the more quickly will he adopt any measure that will rescue his patient. Every abdominal surgeon finds cases in which only on enterostomy can with propriety

be done. When an enterostomy is indicated, to hesitate is to lose your patient, therefore operation should be done promptly, dexterously and with celerity. Dr. Long reports eight cases occurring in his own practice with five recoveries.

Appendicitis.—Channing W. Barrett (*Journal A. M. A.*, April 15) has analyzed the vital statistics of Chicago for the last fourteen years with special reference to appendicitis. He finds that it causes about one per cent. of the mortality from all causes. The first consideration is an early diagnosis. All troublesome appendices should be removed without waiting for an acute attack, and all acute cases should be operated on without waiting for pus, rupture, adhesions or a possible interval. Perforation or gangrene with localized abscess should be operated on with drainage or removal of the appendix, according to the judgment of the operator, and operation is the more necessary if there is no walling off of the abscess. Acute appendicitis should be operated on whenever the patient's condition permits, unless he is clearly convalescing. In that case wait till the acute symptoms are over. Healthy appendices should be left alone. The above counsel does not contraindicate rest, stomach lavage or the withholding of food, any of which measures can be employed as needed with or without operation. Lastly, life is not the only question; time and after-conditions are also important. Adhesions may be temporarily life-saving and later deadly. The waiting treatment favors them. After operation the patient is usually up in from ten days to three weeks. The rest treatment takes a much longer period of time.

Abdominal Tuberculosis.—W. J. Mayo, from his extensive experience with abdominal operations, of which about three per cent. were due to some form of tuberculosis, finds that tuberculous peritonitis is much more frequent in females than in males, and that the explanation of this fact may be found in the frequency of tubal infection (*Journal A. M. A.*, April 15). He has verified Murphy's observation of the patency and thickening of the tubes on one or both sides in these cases. In nearly all the peritoneal involvement was greatest near the infected tube, and this he attributes to proximity and not to gravity, as has generally been done. He explains the curative effect of laparotomy in these cases as acting in two ways: First, by the mechanical separation of the fimbriated extremity of the tube from the surrounding tissue; and second, after removal of the fluid, contact and adhesions with neighboring structures may wall off the infection from the general peritoneal cavity and enable nature to exert itself on a limited focus and to produce a cure. In some cases he has found appendiceal and not tubal infection as the cause. In the majority of cases, however, the localized focus of lupus of the tubal mucosa was the cause. He holds that the failure of laparotomy and evacuation of fluid in tuberculous peritonitis is due to reinfection from local lesions not removed; and in the mucosa of the Fallopian tube, appendix or intestinal tract. In nearly every case the peritonitis has its origin in a local focus, primary or secondary, and, if the former, radical operation will largely increase the chances of its cure.

MEDICINE.

Elimination of Typhoid.—A. Robin (*Journal A. M. A.*, April 8) holds that, while bacteriologic proof is lacking in the chain of evidence connecting typhoid with a polluted water supply, there is yet abundant clinical and epidemiologic evidence of this relation. It is a striking fact, however, that even artesian well water seems to be among the possible polluted sources. That the infection is avoidable is amply shown by European and American experience. He goes at length into the prophylaxis of typhoid and shows that domestic methods, except boiling water, which is often only sporadically employed, are greatly ineffective. Even the best domestic filters—the Pasteur and the Chamberland—require frequent cleansing and sterilizing to keep them in good condition. The use of unboiled water to cleanse foods that are eaten raw, and the milk supply are also to be held accountable for infection. Municipal prophylaxis may also be defective, especially if mechanical filters are employed, and he illustrates this by a comparison of the typhoid death rates of Wilmington, Del., which is thus supplied, and that of Lawrence, Mass., where the better plan of slow sand infiltration is in use. There should also be laws preventing the discharge of raw sewage into streams which supply the drinking water of towns. For the purification of sewage he believes the septic tank method promises the best results.

Variola.—W. T. Howard, Jr., (*Journal A. M. A.*, April 8) has followed up the study of the organism found by Councilman, McGrath, Brinkerhoff and Tyzzer in variola and its life circle. He finds that these bodies in their various stages are constantly present in the skin lesions of vaccinia and variola, and gives the technic of their study. Zenker's fluid is the only fixative that is satisfactory, and it is important that the section should be made so as to include the whole thickness of the skin. Mallory's is the best methylene blue eosin stain for these bodies, but other methods, such as that of Borrel and Weigert's fibrin stain, preceded by carmine, may be used. The bodies stain brilliantly, and with a good light and an oil immersion lens, should be easily recognized in properly prepared specimens. In the latter stages of the disorder the Borrel stain is best. A second cytoplasmic stage recognized by Howard and Perkins is found only in well-established variola visicles, never in vaccinia, so far as known. The other stages are the intranuclear ones, already described by Calkins, with the exception of one which was not found by Howard, and which appears in the later stages of the eruption. It is useless to look for cytoplasmic forms (excepting in local autoinfections) in late lesions or for the intranuclear forms in early ones. The importance of these findings is in the service they may render in the early diagnosis of variola and vaccina. Howard believes that this can be made in doubtful cases with the result of cutting short variola epidemics in their beginnings.

Tropical Amebiasis.—W. E. Musgrave (*Journal A. M. A.*, April 8) gives the results of his experience with tropical amebic dysentery in Manila, where it causes more than 50 per cent. of the invalidism of public, and especially of civil, employees. In the military service there is a smaller percentage on account of the stricter regulations and the medical oversight. The use of cold drinks, and especially of ices containing encysted amebæ, is specially dangerous. Fresh vegetables are responsible for some cases, and others come from lack of cleanliness of the hands. He condemns the tendency to routine treatment. Acute cases should be kept in bed, on fluid diet, pain being controlled by opiates or by local applications; calomel and salines and enemas are useful. After the acute symptoms subside, strict confinement is no longer required, because the patient usually can be treated at home and can have the benefit of carefully directed moderate exercise. Musgrave advises a liberal diet, except where there is disturbance of the stomach and the small intestines.

While change of climate is desirable, especially in old, obstinate and emaciated cases, it should be preceded and followed by careful local treatment. He thinks that the routine use of bismuth has worked harm, at least in a negative way, by interfering with the effects of other drugs. Ipecac, as sometimes prescribed, is apt to be dangerous, but in small doses it may act beneficially. Salines should be used with caution for catharsis only. Musgrave favors the hydrochloric acid and pepsin combinations. Strychnine, while a valuable general tonic, is too stimulating to the bowels to be used simultaneously with enemas. Local treatment is important, and he goes at length into the directions for the administration of injections. The various salts of quinin have been the most satisfactory agents in this method of treatment. There is little choice, apparently, between the different salts, but the solution should be an acid one and of a strength from $^1/_{1,500}$ to $^1/_{750}$. An acid solution of acetozone, $^1/_{6,000}$ to $^1/_{2,000}$ in combination, or alternating with the quinin solution in some cases has given good results. Musgrave cautions against routine methods of local treatment, and insists on treatment being adapted to the special case and, at first, on its being conducted directly under the physician's supervision. In concluding his paper he notices at some length appendiceal amebiasis. Appendicitis may occur either independently of the amebic affection or as a continuation, by contiguity, of the structures. In a minority of these latter cases operation may be performed but more frequently the surgeon will find a gangrenous cecum and will increase his mortality rate. Generally the symptoms are due to involvement of the cecum without amebic involvement of the appendix.

Etiology of Enlarged Prostate.—L. B. Bangs (*Med. Rec.*, April 8, 1905) considers that hypertrophy of the prostate is of inflammatory origin, and that the French view that the enlargement of the gland is a senile process due to general arteriosclerosis has been disproven. The inflammatory theory appears to be the one which accounts for the onset of this malady, which explains the changes in the gland, and which has the most and the strongest evidence in support of it. According to histological examinations, the point of origin seems to be in the prostatic urethra, extending thence along the gland ducts from the urethra toward the periphery of the prostate, the round-celled infiltration being most marked in the vicinity of the verumontanum is in accord with the clinical observation that excessive sensibility and congestion of this region are very often noted in individuals who have practised some form of sexual irregularity. Hypertrophy of the prostate is not a senile disease, but begins in early manhood and is dependent on unphysiological sexual life leading to abnormal hyperemia of the gland. A careful analysis of the histories of three hundred patients of all ranks having unmistakable enlargement showed that over 85 per cent. were subjects of abnormal or unphysiological sexual indulgences which were excessive in degree and continued for years. In the 15 per cent. remaining the primary prostatic congestion was apparently due to a disarrangement of the portal circulation. Gonorrhea alone is not sufficient to produce the malady. The following prophylactic rules are given: (1) Sexual instruction in boyhood; (2) chastity in youth; (3) sexual self-restraint in early manhood, and (4) the physiological sexual relations in the married state.

Researches in Hemophilia.—H. Sahli (*Zeitsch. f. klin. Med.*, Vol. 65, Nos. 3 and 4) had the rare luck to observe four typical cases of hemophilia and to study the peculiarities of the blood in this strange disorder. According to some, the condition is due to high blood-pressure, but this is improbable, since diseases commonly associated with high blood-pressure, such as chronic nephritis, do not usually run with hemophilic symptoms. In the author's cases, the figures obtained with the Riva-Rocci instrument, were normal or below normal. Microscopical examination of the blood, showed only a moderate, relative diminution of polynuclear leucocytes, with relative increase of lymphocytes. The absolute number of leucocytes was normal or diminished. In two cases, the platelets were also counted repeatedly, but their number was never above normal. The alkalinity of the blood, the dry residue of the serum, the depression of the freezing point and the amount of fibrin in the blood, were not altered. The time of coagulation was estimated most carefully and it was found that in the intervals between the hemorrhages, clotting was much delayed, but normal or even hastened, during severe bleeding. The following, new method was employed: A column of blood, about one centimeter high, is allowed to flow into a capillary pipette, one to two millimeters in diameter. An absolutely clean, white strand of horse-hair is then passed into the blood, and drawn out a short distance every half to one minute. If the hair has been carefully deprived of all grease, no blood will adhere to it at first, but as soon as coagulation has set in, the withdrawn section will no longer appear white, but red. The rapid clotting during bleeding, despite continued hemorrhage, is probably due to an abnormal quality of the vessel walls. Under normal condition, the latter probably furnish certain substances necessary for the production of fibrin-ferment (thrombo-kinase) locally at the site of injury, so that a clot will soon obstruct the opening in the vessel. During hemophilia, the torn edges of the vessel do not supply the blood with this substance, hence no local clot forms. The imperfect clotting during the intervals is due to a similar deficiency on the part of the blood cells and the hematopoietic apparatus. Chemical changes in the vessel-walls will also explain the occurrence of spontaneous hemorrhages and the reported cases of hemophilia of single organs (Senator's renal hemophilia). Very little can be done for the disease, except to improve the general constitution. The local hemorrhages are best controlled with compression, gelatin and adrenalin, but the latter two drugs should never be injected subcutaneously. It is not likely that the local application of thrombokinase will do much good. There is as yet no drug from which good results can be expected on internal administration.

Bronchopneumonia Complicating Measles.—Charles F. Craig (*Journal A. M. A.*, April 15) reports the findings in cases of bronchopneumonia occurring in an epidemic of measles at one of the United States army posts in California, the patients being sent to the hospital at San Francisco for treatment. Out of 80 cases, bronchopneumonia developed in 12 (13 per cent.), and ten patients died. From a summary of the macroscopic and microscopic changes of the necrotic areas in the lungs, liver, spleen and kidneys, it was evident that the infection was of a septic character, causing hemorrhages in all the organs, areas of focal necrosis, hyaline degeneration, empyema and abscess formation in the lungs, kidney and spleen, and the occurrence of large numbers of lymphoid cells in the capillaries of the liver and the kidney and in the air vesicles of the lungs. He believes that this epidemic complicating measles and with so high a mortality was due to secondary infection of the diseased mucous membrane of the respiratory tract by streptococci, causing pyemic infection due to those organisms.

The Blood Changes in Pneumonia.—In blood cultures from 175 cases of lobar pneumonia, E. C. Rosenow (*Journal A. M. A.*, March 18,), found pneumococci in all but 15. In 11 of the 15 cases the second culture was not possible. In the other 4, repeated cultures failed, though in one careful search of the smears directly from the blood revealed pneumococci. Leucocytosis was high in all four, and he was inclined at first to suspect a phagocytic action, but later research showed that the negative cultures were made later in the disease, thus indicating a diminution in number or viability, or both, of the pneumococci at the time of crisis. Rosenow does not seem to consider the blood cultures of great prognostic value in this disease, though he says, other things being equal, a high leucocytosis appears to be a favorable sign rather than otherwise. The agglutination test of the pneumococci he does not think of much practical value. The point he considers of most importance is the reaction changes; a well-marked acid reaction associated with a voluminous sediment appearing in cultures of pneumococci in pneumonic and not in normal serum. He asks, in view of this fact, whether some of the symptoms of pneumonia may not be due to an acid intoxication of the system, and, in support of this theory, he adduces experiments which have been made with the alkaline treatment for a year past in Dr. Frank Billings' clinic, in the Presbyterian Hospital. From one to three drams of sodium bicarbonate in at least four ounces of water were given by the mouth or in still larger doses by the rectum. No other treatment was employed except heart tonics, catharsis or venesection whenever required, which was seldom. Judging from the result this alkaline treatment seems rational.

Present Status of Blood Examination in Surgical Diagnosis.—F. Sondern (*Med. Rec.*, March 25, 1905) states that the differential leucocyte count offers a better guide to the status of an inflammatory process than the absolute leucocytosis. Three distinct blood pictures may occur in inflammatory lesions. First, a relative percentage of polynuclear cells below 70, with an inflammatory leucocytosis of any degree, excludes the presence of pus at the time the blood examination is made, and usually indicates good body resistance toward infection. Second, an increased relative percentage of polynuclear cells, with little or no inflammatory process and the percentage is a direct guide to the severity of the infection. Third, an increased relative percentage of polynuclear cells with a decided inflammatory leucocytosis. Here the percentage of polynuclear cells is an accurate guide to the status of the inflammatory lesion. Iodophilia is less reliable as a test of the presence of suppuration than is the differential count.

Some Chinese Medicines.—S. Synge (*Dublin Jour. of Med. Sci.*, March, 1905) gives an interesting account of many absurd beliefs recorded in the Chinese Materia Medica and points out the great need of a new system. Sulphate of iron is said to go at once to the liver and gall-bladder and is good when the liver is inflamed; it is also good for cough, epilepsy, hematuria and for norms in a tooth. The iron sulphate is said to be obtained from copper pits and to be the fluid part of the copper, thus enabling it to go to the liver. The color of the best preparation should resemble the inside of the mouth of a green frog. The human placenta is listed among the medicines and is said to cure weakness, thinness, wasting diseases, madness and epilepsy. The placenta should be taken from a healthy primipara washed in a running brook, then boiled, after which it may be toasted and powdered, or eaten after the boiling with rice. Powdered tiger bones are thought to give strength. The urine obtained from the white horse, the ass and children is given in fevers. Another absurdity recorded is that when a placenta does not come away it goes up into the woman's chest and suffocates her. It is also believed that the milk comes into a mother's breast with the incoming of the tide.

Gonococcus Infections in Children, with Especial Reference to their Prevalence in Institutions and Means of Prevention.—In reference to the often widespread gonococcus infections in children which are sometimes seen occurring in wards of hospitals and occasionally in private practice, L. Emmett Holt (*N. Y. Med. Jour. and Phila. Med. Jour.*, March 25, 1905) draws the following conclusions: (1) We must recognize gonococcus vaginitis as a very frequent disease and one to be constantly reckoned with in institutions for children. It is also very frequent in dispensary and tenement practice and not uncommon in private practice of the better sort. (2) In its milder forms and sporadic cases it is extremely annoying because so intractable; in its severe form it may be dangerous to life through setting up an acute gonococcus pyemia or infection of the serous membranes, and in its epidemic form it is a veritable scourge in an institution. (3) The highly contagious character of gonococcus vaginitis makes it imperative that children suffering from it should not remain in the same wards or dormitories with other children. A similar danger, though less in degree, exists with the gonococcus ophthalmia and acute gonococcus arthritis or pyemia. (4) It is practically impossible to prevent the spreading of the disease if infected children remain in the wards with others. They must either be excluded from the hospital or, if admitted, immediately quarantined. (5) Cases of gonococcus vaginitis can only be excluded from hospital wards by the systematic microscopical examination of smears from the vaginal secretion of every child admitted. If a purulent vaginal discharge is present, such examinations are imperative and should be made as much a matter of hospital routine as the taking of throat cultures in children with tonsillar exudates. In the absence of microscopical examinations a purulent discharge in a young child may be assumed to be due to the gonococcus. (6)The quarantine to be effective must extend to nurses and attendants as well as to children. Furthermore, the napkins, bedding, and other clothing of infected children, must be washed separately from that of the rest of the house. (7) Where the gonococcus is found with no vaginal discharge or with a very slight discharge, children should also be quarantined, although it is impossible at present to say to what degree such cases may be dangerous in a ward. One of the greatest difficulties in connection with the gonococcus vaginitis arises from the prolonged quarantine rendered necessary from the fact that these cases are of very chronic character and very resistant to treatment. (8) The danger to nurses from accidental infection, especially in the eyes, is considerable. At the present time they are not sufficiently instructed in this respect.

PATHOLOGY AND BACTERIOLOGY.

Chemistry of Blood.—K. v. Rzentkowski (*Virchow's Archiv*, Vol. 179, No. 3) gives the following average figures for normal blood: Dry residue, 21.23 per cent.; total nitrogen, 3.52 volume per cent.; residual nitrogen (nitrogen left after removing albumin), 0.047 volume per cent. In acute and chronic infections and in anemia, the blood may be considerably diluted. In

nephritis, the dilution reaches its maximum during the enemic state. Typical cases of fibrinous pneumonia show an increase of residual nitrogen probably due to the autolysis of the pulmonary exudate. The residual nitrogen is also increased in nephritis, particularly in uremia. Inspissation of the blood is noticed in dyspnoic conditions, such as pulmonary emphysema, and effects chiefly the dry residue and total nitrogen. Edema due to nephritis is accompanied by dilution, edema due to lack of cardiac compensation, by inspissation. Serous exudates are blood-serum altered by the endothelial cells, while transudates in statu noscendi are merely aqueous solutions of mineral salts, the albumin being added subsequently within the serous cavities.

Experimental Measles.—A demonstration of the fact that the virus of measles may be obtained from the blood of patients affected with that disease, was performed by Ludwig Hektoen (*Jour. of Infect. Dis.*, March 1, 1905), who in two cases was able to inoculate other persons with this virus and produce the disease after a number of days. The virus of measles is present in the blood of patients with typical measles sometime at least during the first thirty hours of the eruption. The virus retains its virulence for at least twenty-four hours when such blood is inoculated into ascites-broth and kept at 37° C.

The Opsonic Action of Blood Serum.—It was Prof. A. E. Wright who discovered that the white blood corpuscles are alone not able to destroy bacteria, but that these must first be rendered vulnerable by certain substances present in the blood-serum, which he termed opsonins, from the Greek word "opsono"—"I cater for." A series of further researches in these bodies by W. Bulloch and E. E. Atkin (*Proc. Royal Soc.*, February 24, 1905) reveal that opsonin is present in the normal serum, that it is thermolabile, and rapidly disappears from the serum when the latter is mixed with bacteria at 37° C. or at 0° C. After the opsonin has united with the bacteria the mixture of serum and cocci can be heated to 60° C. for long periods without abolition of the opsonic effect. The leucocyte is practically an indifferent factor when the phagocytic power of different bloods is compared. The capacity of bacterial emulsions for extracting opsonin from the serum is only slightly diminished by subjecting these emulsions to very high temperatures over long periods. The action of heat is to destroy the opsonin, and not merely to convert it into a non-opsonisable modification. The opsonin is not identical with any of the antibodies hitherto discovered in the serum. The opsonin is of relatively simple constitution.

Properties of Mast-Cells.—According to D. Faur (*Virchow's Archiv.*, Vol. 179, No. 3), the mast-cells behave in many respects like polynuclear leucocytes. Like the phagocytes, they will exhibit a negative chemotoxis toward all bacteria and toxins which are virulent for the animal experimented upon. In case of non-virulent microbes and toxins, a negative chemotoxis is not observed. On the whole, the mast-cells react more readily than the other leucocytes, for they will exhibit negative chemotoxis if the animal is already immunized against the germ.

Development of Peritoneal Tuberculosis.—Tubercle bacilli may reach the peritoneal cavity in two ways: as a result of rupture of a tuberculous focus near the serosa or indirectly by way of the lymphatics from organs of the abdominal cavity, or through the perforating lymph-tracts of the diaphragm from the pleura. The bacilli will become implanted by preference where intestinal peristalsis does not disturb the development of the tubercle (retro-uterine and utero-vesical plica, upper surface of the liver, lower surface of the diaphragm and anterior surface of the spleen). This implantation tuberculosis is characterized by its superficial position. G. Guyot (*Virchow's Archiv.*, Vol. 179, No. 3) recognized two forms: confluent granulations, and discreet conglomerate tubercles. The latter frequently possess a pedicle. Implantation tuberculosis differs from the ordinary tuberculosis by its extensive vascularization and by the polymorphism of its elements. The endothelial cells lining the peritoneum are not implicated in the process since the new tissue is made up chiefly of emigrated cells.

Relation of Human to Bovine Tuberculosis.—A valuable contribution to the relation of human to bovine tuberculosis is contained in the article of F. Klemperer (*Zeitsch. f. klin. Med.*, Vol. 56, Nos. 3 and 4). A number of tuberculous cows were infected with human tubercle bacilli to determine if these would induce any inhibitory action upon the disease. The process was already too far advanced to permit of any conclusion, but when healthy animals were first infected with bovine tuberculosis and later with human tuberculosis, a decided immunizing effect was seen. The entire theory of immunization in tuberculosis has been modified considerably of late, for while Koch first employed the extract of dead bacilli and later the disentegrated, dead bacilli, themselves, the tendency at present is to employ live bacilli of some other species, which prove only slight virulent or avirulent for the animal experimented upon (bacilli from turtles for guinea-pigs, etc.). There can be no question that bovine bacilli, introduced by way of the intestinal tract during infancy, may infect human beings, but the author could demonstrate on himself that they are harmless if infected under the skin. An emulsion of 0.25 c.c. of live bovine bacilli caused some local disturbance, but no general symptoms. A small tumor remained at the site of inoculation which was excised after ten months and was found to consist solely of harmless granulation tissue. Tuberculous individuals were then treated with injections of live bovine tubercle bacilli, and in all some improvement set in, usually after a slight local reaction. The question of immunizing healthy individuals could not be settled, but for the treatment of the very earliest stages of consumption, the injections seem strongly indicated.

Bacteriology of Scarlatina.—A full résumé of the various bacteria which have been found in the different organs of scarlet-fever patients, and which are supposed to play an etiological rôle, is given by G Jochmann (*Zeitsch. f. klin. Med.*, Vol. 56, Nos. 3 and 4). It is not probable that the inflammatory hyperemia of the pharynx in the first days of the disease is caused by streptococci, since the deeper layers of the tissues and lymphatic swellings in other parts of the body, never contain these germs. The white masses in the tonsillar crypts usually show a large number of strepto- and staphylo-cocci and the diphtheria bacilli are not rarely the cause of severe necrosis. Wherever streptococci cause necrosis, the formation of fibrin, so characteristic for diphtheria, is absent. At present it is generally conceded that diphtheria bacilli are merely an accidental, secondary infection and have nothing to do with the scarlatinal process proper, but that streptococci, while not necessarily the cause of the disease, are certainly responsible for most cases of pharyngeal necrosis. In rare cases, the germs characteristic for Vincent's angina, and the proteus bacillus, have been found in the throat. The appearance of the tongue is strictly pathognomonic for scarlet and is not seen in diphtheria or streptococcus infection of any kind. The nose is

frequently the seat of streptococci and in the ears, these germs, either alone or with staphylococci, pneumococci or proteus, may be detected, if inflammation is present. Complications on part of the eyes are almost always due to streptococci and in the lungs, strepto-, staphylo- or pneumono-cocci, or influenza bacilli may be found. Almost all the other organs, if diseased, harbor streptococci. Culture taken from the blood post mortem are often, but not always positive. Intravital cultures were positive in 25 out of 161 cases, if made after the third day of the disease; before this time most attempts to grow bacteria out of the blood were negative. The positive causes were usually seriously ill, with marked symptoms of intoxication. Streptococci isolated from scarlet cases have been carefully studied by many competent observers and there can be no doubt that they are in every way identical with the ordinary pyogenic streptococci. The following reasons may be given why scarlet fever is not merely a streptococcus infection, even though the germ occurs so frequently in the blood and organs: Streptococci are found very often in other diseases (measles, diphtheria), especially in the throat, and yet the symptoms are different. It cannot be merely a matter of predisposition; for if a scarlatina case is accidentally placed in the diphtheria ward, many of the patients will become infected, showing that some new, specific virus has been added. Recovery after scarlet fever is regularly followed by a certain degree of immunity which is never seen in diseases caused by streptococci (erysipilas, wound-infection). Here on the contrary, recurrences are the rule. With the present state of our knowledge, the conclusion is justified, that the cause of scarlet fever is an unknown virus, which renders the body particularly susceptible to secondary streptococcus invasion.

The Clinical Use of the Antistreptococcus Serum.—The necessary indications for the administration of this remedy are summarized by F. Meyer (*Berl. klin. Woch.*, February 20, 1905), as follows: For administration in the human subject, only a thoroughly tested serum should be employed and this standardizing should be done by some central authority who should use for the purpose a culture derived from human sources. With these the producer of the serum must have had absolutely nothing to do. The practitioner who employs the serum must be thoroughly well informed in regard to the mode of action of this remedy, so that the indications and contra-indications may be definitely recognized. Treatment with the streptococcus must not be regarded as last resort, but rather as prophylactic measure. The author discusses in detail the results obtained with his own serum in a large number of cases. He divides the latter into two groups, in one of which a prophylactic effect is desired, in the other, a curative. In the first may be included the various malignant forms of angina, erysipelas, scarlatina, and puerperal septic endometritis; in the second, the various forms of sepsis. The effect of a successful serum injection is not manifested for twelve to twenty hours, and reaches its maximum in twenty-four hours. The morning temperature is therefore more apt to show the effects of the serum than the evening temperature, if the injection has been made the previous evening. The most noticeable effect is the reduction in temperature, which is accompanied by a more or less profuse perspiration. But before this, the influence on pulse and respiration is already marked, the patient becomes quieter and breathes easier. This sedative action is especially well marked in septic puerperal cases. For the special indications in the various disease already noted, it is necessary to refer to the original article.

Prognostic Value of the Diazo Reaction.—It is now more than twenty years since this original reaction was described by Ehrlich. J. D. Rolleston (*Lancet*, February 4, 1905) states that the greatest certainty of Widal's test has tended to throw the older reaction into the shade. The use of the latter, particularly as regards prognosis having been disregarded. The present contribution is based on observations made on 65 cases of enteric fever. A positive reaction in enteric fever is first obtained about the fourth day of the disease. It tends to disappear by the end of the second, or in the course of the third week. Persistence beyond that period occurs only in severe cases and in spite of a fall of the temperature indicates that the infectious process is still active and that a recrudescence or relapse is eminent. The reaction in all but severe attacks tends to disappear in the second or third week; this disappearance shortly preceding or coinciding with the commencement of lysis. A sudden disappearance of the reaction associated with a deterioration of the general condition is a bad omen.

Is the Common House Fly a Factor in the Spread of Tuberculosis?—J. O. Cobb (*Am. Med.*, March 25, 1905) draws attention to the fact that several observers have demonstrated that the fly carries tubercle bacilli on its feet and in its tomach. This being true it must be a dangerous source of infection among the poor where the food is left exposed to contamination by flies. He believes it to be the most common source of infection. Data collected from all parts of the world, prove that wherever people have tuberculosis they also have the fly as a pest. He insists that special effort should be directed to the destruction of all sputum, thus removing the sources of infection rather than to the roundabout way of trying to build up bodily resistance.

Identification of Pseudodiphtheria Bacilli.—Morphologically and biologically the pseudodiphtheria bacillus usually resembles the diphtheria bacillus so closely that many authors are inclined to believe it a non-virulent form of the latter or else assume a certain amount of immune substances normally present in the blood of the patient which prevents intoxication. The communication of E. Saul (*Münch. med. Woch.*, March 7, 1905) must be regarded as a valuable contribution, since it enables a differentiation, though the method is somewhat tedious. The author looks upon an entire colony as a unit and studies its structure by means of serial sections. The diphtheria "plant" consists of a central trunk which narrows at each end; numerous branches are given off from the sides and still finer twigs come off from these. The pseudodiphtheria plant, on the other hand, consists of a trunk of equal width throughout, while at the ends, dichotomous division is often seen. There are many variations, showing that there are many varieties of the latter bacillus.

THERAPEUTICS.

Ocean Bathing.—Philip Marvel (*Journal A. M. A.*, April 8) calls attention to the effects of ocean bathing. Sea water is really a mineral water containing large quantities of salts in solution. He calls attention also to the effects of temperature; to the depression of the system due to long exposure in cold water, showing itself by a drop of from one to two degrees of body temperature and in lessening of the pulse rate from fifteen to twenty beats. If after a bath there is a general glow of the surface succeeded by a pleasing warmth internally and accompanied by a sense of general invigoration the effect is salutary. If, on the other hand, there is chillness, depression and languor, the reverse is the case. In his opinion, ocean bathing, as carried

on in the Atlantic coast resorts, does more harm than good, and physicians should warn patients of the dangers of too long immersions and of exposure in wet clothes on the sand. The practice of promenading the beach in scanty and wet clothing after a long exposure in the surf is to be condemned. An important feature in sea bathing is the impact of the waves on the body, and to this may be added the thermic stimulation of the cold, the chemical irritation of the salt and the mechanical effect of the forced activity, all producing a combination of the stimulating influence of a brine bath at low temperature with the effect of a stimulating hydrotherapeutic procedure. These effects are admirable for stimulating functional activity in weakened conditions in which normal metabolism is inhibited or in which a condition of perverted nutrition exists, as in some functional disturbances of long standing. Sea bathing is contraindicated, however, wherever there is weakening or loss of elasticity of the arteries, organic heart disease, recent rheumatism, cholelithiasis, acute gastro-intestinal or febrile disease, or in any condition where the normal resistance is so reduced that it is necessary to guard the patient's forces.

Abdominal Massage.—Cases which give the best results may be grouped as follows: Those associated with abnormal fat formation in persons of sedentary habits; abdominal plethora; chronic catarrhal conditions of the intestinal mucosa; disturbances of innervation in otherwise healthy persons. R. LAUER (*Maryl. Med. Jour.*, April, 1905) says that the masseur does well to warn the patient that some soreness of the muscles is to be expected after the first treatment. Greasing the abdominal wall is superfluous. The patient should be stretched out at full length facing the masseur. *Maneuver* 1.—The palmar surface of the left hand is placed over the umbilicus and semicircular movements are made from left to right and from right to left. *Maneuver* 2 consists in making a series of half circles with both hands over the course of the colon. *Maneuver* 3 consists in kneading the abdomen, using first one hand then the other, the free hand acting as a support to prevent the unpleasant sensation of tearing. *Maneuver* 4.—The radical side of the right hand with thumb abducted, is used performing a cradling motion in a vertical direction. *Maneuver* 5.—The oblique muscles are grasped and strong central pressure exerted, causing shaking movements of the whole abdomen. *Maneuver* 6 forms an effective conclusion of the treatment. The left hand is pressed deeply into the pelvis above the symphysis to protect the bladder against disagreeable reflex phenhenomena. The right hand is placed over the umbilicus and exerts evenly distributed trembling movements with gradually increasing pressure. It should be taken as an indication to cease the maneuvers when the skin of the patient shows signs of moisture.

A Brief Résumé on the Action of some of the Important Somnifacients, with Clinical Notes on a New Hypnotic.—In speaking of the use of various hypnotics Dr. A. P. STONER (*N. Y. Med. Jour. and Phila. Med. Jour.*, March 25, 1905) reviews the advantages and disadvantages of the hypnotics in everyday use and tabulates his results obtained over a period of one year with the use of a new hypnotic, which is known as isopral. It is chemically trichlorisoprophylalcohol ($CCl_3—CH<\begin{matrix}CH_3\\OH\end{matrix}$). It is a colorless, shining, crystalline powder, slightly soluble in water, and has a burning taste and a characteristic pungent odor. It is more active than chloral, without any of the latter's depressing phenomena upon the respiratory or circulatory functions. It is best given in capsules or wafers. The best results are obtained in doses of from 0.65 gram to one gram, and it should be taken upon an empty stomach.

Local Anesthesia with Adrenalin-Cocaine.—It has been observed long ago that a part rendered bloodless is much easier narcotized; thus the application of an Esmarch bandage tends to increase the anesthetic property of cocaine injected into the bandaged part. Adrenalin is known for its decided vasoconstrictor effect, and PILETZKY (*Roussky Vrach*, February 25, 1905) used a preparation of the drug with cocaine to enforce the effect of the latter, in the following mixture: To a five per cent. solution of cocaine hydrochlorate there was added a 1 to 1,000 solution of adrenalin in the proportion of two drops to each c.c. of the cocaine solution. The author employed this mixture for local anesthesia in 45 cases, including such as lipoma of the external genital organs, phlegmon, epithelioma of the left check, cancer of the lower lip, chronic ascites of the ovary, atheromatous tumors of the forehead, fistula of the lower jaw, and so on. In all of the cases there was induced complete anesthesia, there was an entire absence of any parenchymatous hemorrhage, the anesthetic effect being observed also on the diseased tissues. The author failed to observe any harmful effects of the mixture on the course of healing, nor were there any immediate toxic symptoms, with one exception. Anesthesia began ten minutes after the injection and lasted for almost two hours, thus enabling the operator to stitch up the wound painlessly. In operating in deep tissues it is preferable to use weaker solutions of cocaine but in greater quantity. Some authors advise caution in old people and in children. It is a mistake to assume that local anesthesia may only be employed in so-called minor surgery, for at a recent meeting of Russian surgeons, reports were made of the successful use of local narcosis in such capital operations as hernia, goiter, appendicitis, laryngeal growths, etc.

Best Method of Administering Potassium Iodide.—M. HUHNER (*Med. Rec.*, April 1, 1905) says that this drug should always be given in solution well diluted, and, if possible, never on an empty stomach. Milk is the best diluent. It is essential to have a perfectly pure preparation, as many of the bad effects ascribed to the drug are due to impurities. Strict attention to cleanliness of the skin by daily baths is necesary to prevent the skin eruptions otherwise caused by the decomposition of the iodine excreted with the perspiration by the fatty acids setting free iodine, which acts as an irritant. It is preferable to write for a 50 per cent. solution, of which two drops will equal one grain of the drug, as the 100 per cent. solution is difficult to prepare, and, as usually dispensed, is under strength. Iodide of potassium is incompatible with alkaloids and the ordinary soluble metallic salts. Small doses may produce symptoms of iodism, while larger doses in the same patient may not have this effect. The drug should never be given in phthisis. Special plans of administration are described for syphilis, locomotor ataxia, chronic endarteritis, chronic endocarditis, asthma, nephritis, lead poisoning, rheumatism, neuralgia, etc., and the best methods of giving the drug to children are also indicated.

Endermatic Application of Guaiacol.—Good results in rheumatism and pleurisy have been obtained by D. HECHT (*Münch. med. Woch.*, February 28, 1905) from local applications of guaiacol and salicylic acid (10 per cent. each) dissolved in oil. The pains disappear very rapidly and any fluid present is soon absorbed. After several days the skin will become thick, like parchment, and absorption of the drugs will be less active, hence it is best to apply at some other part of the body.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, MAY 6, 1905.

THE OSLER DINNER.

On Tuesday evening, May 2, when some 550 physicians sat down in the banquet hall of the Waldorf-Astoria to the farewell banquet to Dr. William Osler, before his departure to take the chair of Regius Professor of Medicine at Oxford, all of them felt that they were assisting in the making of a notable bit of medical history. They had gathered from all over the United States, even from as far distant as Los Angeles and from Canada, to do honor to the man whom all acknowledged as the most prominent member of the medical profession in America. There was no doubt about the sincerity of the tribute paid, nor of the thoroughly spontaneous character of the feelings displayed, nor of the total absence of any other motive except that of conferring honor where honor is due. It was a notable event and one that shall never be forgotten by those who participated in it, who came away, one and all, with the idea that they had been present at the most important medical celebration of our generation.

We give in our columns this week a full account of the dinner, and can add very little here that would emphasize the significance of the celebration. Men of the caliber of Drs. Shepherd, Wilson, Welch, Jacobi and Weir Mitchell expressed in all their fulness the feelings of the American Medical Profession toward the greatest medical teacher of our generation. As they all insisted, it is not the attainments of the man that are honored, but his character. It is not so much for any great discoveries that he has made, but for the stimulating influence he has exercised over all those with whom he came in contact, so that every one saw even the things of his own medical experience clearer for the suggestions he received, that has raised Osler to his enviable position. Better than any medical teacher, he realized and made others realize that trifles make perfection, and though perfection may be no trifle, yet it is the constant care for little things that makes the difference between the ordinary practitioner of medicine and the serious medical clinician.

Professor Osler's career is an example to the medical profession of this beginning twentieth century that it would be too bad to lose any of its forcefulness. He has stood for ideals and ideas in a day when the over sordidly real is only too prone to smother aspirations that are not selfish and material. He has neglected opportunities of making money when this seems to be the one thing necessary in life, the great criterion of success in order to make medicine for this generation and medical teachers for the next. It is all the more to his credit, then, that his professional brethren flock around him on an occasion of this kind and proclaim that he, above all others, has represented their ideal of what the modern medical man should be, and that he has set up a light which will be for a long time to come a guiding star to many in the perplexities of professional life.

In his response to the eulogies of the speaker, Professor Osler thought it necessary to point out one serious defect in the present system of hospital management in this country. When on such an occasion, such a man deems it expedient to utter what would from almost any other could scarcely have seemed but a discordant note, it would be lamentable if the lesson he tried to teach were to be lost. He insisted, as he has often done before, that there are magnificent opportunities for clinical work being wasted in hundreds of hospitals throughout this country. Every town of more than 50,000 inhabitants might have a hospital from which, by proper systematization of the service as important clinical observations might be made as in any of the

smaller university towns in Germany. He did not hesitate to say that if the proper arrangements would be made, our generation might see as much valuable progress in medicine in five years as has ever been done in Germany in ten. For this the hospitals will have to be not the bone of contention of politics, medical or municipal, they will have to be managed by a few men, not many, and the resident staff will have to be on salary, and hold their positions not for a year or two, but for many years, and the teaching of students would constitute one of the most important aims of the hospital.

Here is the opportunity for the medical profession of this country to show that it has really benefited by the teaching of Osler. This is his last will to us Americans before he takes up his work of stimulating English medical students, as he has our own. If the realization of this higher usefulness of our hospitals can be brought about, then indeed would the man, whom all have united to honor, feel that his work was not in vain among us. The task is not so difficult as it seems. It is not near so discouraging as must Osler's own effort to introduce true bedside teaching into America have seemed when he began it some twenty years ago. It needs only a few persistent men to show its feasibility, really only one is necessary, and then the example will do the rest.

Besides the more than half thousand professional brethren who bade farewell to Osler on Tuesday evening, there are 100,000 medical men in this country to whom his name and fame are not unknown, and to most of whom, though he least of all might suspect it, his life as teacher and clinician has been an inspiration. What he has stood for has lifted them up to some extent, at least, above the sordidness of their surroundings. For them would we here, as their representative, bid him farewell and God-speed. Though he deprecates the thought himself, he has well deserved all the tributes that have been paid to him, and his career in America will long remain as a proof to rising generations of what can be accomplished by straightforward unselfish efforts on the part of a man who has refused to lower the standard of his ideals to those of his time, but has, on the contrary, held his aspirations as the only realities of a life to be lived for itself and for personal satisfaction rather than for the illusory rewards that a more strenuous devotion to selfish ends might seem to promise.

THE QUESTION OF SURGICAL CONSENT.

THERE is much current misinformation on the subject of the right of a husband to give or to withhold consent to an operation upon his wife. In many quarters it is customary in such cases to act in accordance with the instructions of the husband, whether or not his views are shared by the patient herself. This undue deference to the wishes of the husband is in part a relic of the time when women occupied in the eyes of the law much the same position as that held to-day by children; in part it is attributable to a desire at all hazards —even at the risk of a patient's life or health—to avoid any dispute with her husband or family that might lead to litigation; and it may be credited in some instances to an erroneous belief concerning the law at present governing the cases under discussion. Many married men have strong but uninformed convictions about their rights in the matter. In the performance of official duties in a large institution we have had occasion to discuss with a large number of husbands the question of operating upon married women, and almost invariably we have encountered the idea that the rights of a married woman are practically negligible and that those of the husband are entitled to serious respect.

The fact is that a husband does not occupy such a position of ownership in relation to his wife that a surgeon is justified in accepting his authorization to perform a surgical operation on her without the consent of the woman herself; nor can the husband legally interfere where the patient's consent has been duly sought and obtained. This interpretation of the law was reiterated recently in a decision by Judge Brown in the Appellate Court of Cook County, Ill. Any other view of the matter could only result in harm to adult female patients who are unfortunate enough to be married to unreasonable and unscrupulous men; unwarranted submission to the will of the husband would, furthermore, lead to neglect of proper treatment, and would thus expose surgeons to innumerable suits for malpractice. It is wise for surgeons to have clear understandings and amicable relations with the husbands of their patients whenever such relations are possible, but the interest of the patient goes above the whim or will of any other person, and this interest will always govern the conduct of the well-informed and conscientious surgeon.

The decision of Judge Brown is not without precedent. A particularly clear statement of the law was made in a case decided in a Maryland

court and frequently quoted in text-books. In this case the surgeon operated for a tumor of the breast which was supposed to be benign, but which proved to be malignant; upon the discovery of the true nature of the growth, amputation of the breast was performed. The husband testified that he supposed the operation was for the purpose of removing an innocent tumor and that he never would have consented to the removal of the entire breast. The court said that "the consent of the wife and not that of the husband was necessary. The professional men whom she had called in were the proper persons to determine what had to be done. They could not of course compel her to submit to an operation, but if she voluntarily submitted to its performance her consent would be presumed."

So far as the consent of the adult patient himself is concerned, it is a general proposition of law that a surgeon must have consent before operating upon a patient. As a matter of fact, however, the courts in this country infer consent to perform an operation from the fact that a patient has voluntarily placed himself under a surgeon's care, and when no express restriction is named before the beginning of an operation, or before the patient is placed under the influence of an anesthetic, the surgeon is justified in performing whatever operation is indicated by the conditions found or arising during the progress of an operation. It is, of course, assumed that the procedure resorted to is not unnecessary and is one which is recognized by the profession as a suitable and proper means for the relief of the condition or danger from which the patient suffers or to which he is exposed; and it is furthermore assumed that the operation will be performed with a reasonable degree of skill. The test of skill applied in those legal decisions which are most frequently consulted is that "there shall be required of the physician and surgeon that amount of knowledge, skill and experience, and the exercise of that degree of care and skill which physicians practising in similar localities ordinarily possess and exercise."

In the case of children requiring surgical operations, it is maintained by some writers that the consent of the parents or guardian is not required, provided the child is of a proper age and discretion to understand the nature and effect of the operation proposed. This is a question which rarely has been considered in the courts of this country; but in the absence of authoritative decisions, it will be wise for surgeons to follow the practice of the leading hospitals. These institutions, where most of the major surgery is performed, invariably seek the consent of the parents or legal guardian of all minors committed to their care for surgical treatment. In emergency cases, however, where delay would be dangerous and where the parents of the child cannot be reached at once, operations may be performed without waiting for consent, and the surgeon so operating will incur no responsibility beyond that assumed whenever a surgical operation is performed. It is not necessary either for a surgeon to obtain the consent of a patient for the performance of a life-saving operation upon an adult, if the patient is unconscious or delirious when placed in the surgeon's hands.

STATE TREATMENT OF INEBRIATES.

What has well been characterized by a prominent member of the New York Legislature as an "unspeakable bill" is just now in process of presentation to the Assembly at Albany, and is of special interest to physicians.

This bill, while presumably meant to prove a blessing for all those afflicted with dipsomania or any of the drug habits, can scarcely be spoken of as a thinly veiled pretext, since it is an eminently overt procedure for the enrichment of a stock company that has made itself offensively prominent before the public by its advertising methods in recent years. According to the proposed bill, magistrates throughout New York State shall have the privilege of ordering, if they see fit, that all those who are adjudged to be habitual drunkards, or any person who has been convicted of crime considered to have been committed under the influence of liquor, or of some drug addiction, and all those who are inmates of State institutions and are victims of the alcoholic habit or of any drug habit, be required to take the Oppenheimer treatment, the expense of such treatment —fixed at the modest sum of $25 for each case— it being compulsory for the State to pay.

Probably no more bare-faced attempt at special legislation, calculated to enrich those who are interested in the introduction of the bill, has ever been made. This is, however, only the culmination of a series of methods, much to be deprecated, that have been used by this concern in recent years. We called attention years ago in the Medical News to the way in which the public confidence had been abused by the exploiting of the Oppenheimer methods in one of our city institutions, and how, by political influence, the em-

ployment of this treatment has been foisted upon many alcoholic patients in Bellevue. The results obtained at that time were not such as to lead the physicians, who were in a position to judge, to consider that this new therapeutic method represented any distinct advance over remedial measures that had been employed before. As in most publicly exploited medical schemes, the important ingredient in the remedy is printer's ink, which has been used so freely and effectively often through channels that gave it special force and apparent respectability.

The advertising management of the Institute may be commended as absolutely brilliant in conception and Napoleonic in execution. From the very beginning the most prominent clergymen were induced to manifest publicly their interest in the new method of treatment, and allowed their names to be used freely in its approval. We are happy to say that during the last year, since the methods of the concern have become even more flagrant than before, many of the prominent clergymen have withdrawn their names as patrons, though we understand this withdrawal has not been made entirely without opposition on the part of the company, who insisted on their supposed rights to use recommendations once given.

The unfortunate association of religion and charity with the evident commercial qualities of the proposition has produced a serious revulsion of feeling in many of those already lacking in cordial sympathy with the church, who seem to see in this scheme the confidence of religious people almost openly abused. Some of the stock-jobbing features in this matter have not been entirely unworthy of the promotion efforts of "frenzied finance." It is not a pleasant thing to learn that a large block of stock in this concern is said to be held in the family of a very prominent clerical dignitary, who has not hesitated to express in public not only his approval, but his fervent commendation of what is being accomplished by this method of treatment. When, in addition to this, it is learned that some of the methods of obtaining testimonials from cured cases are worthy of those which are employed by the competitors and colleagues of the proprietary medicine business, the impression produced is indeed sad. The whole scheme by which the stock of this company was put on the market smacks so much of modern promotion methods that the church connections cannot but be smirched by it and the evil effect on people's minds, when the truth comes to be known, cannot but be supremely evil.

We have been at considerable pains in order to secure definite details in this matter, because we understand that the Oppenheimer method of treatment is being offered as an exclusive right to physicians in certain small towns throughout the country. As in the case of the sale of stock, physicians are told that there are many agents for this method of treatment all over the country who are most efficient in their recommendation, and yet whose efforts are secured entirely without pecuniary compensation. The reference is evidently to the many clergymen who, having become interested because of the example of the more prominent divines of the large cities who were patrons of the concern, are attracted by the supposedly charitable features of the work. Physicians are told that far from discrediting them professionally or ethically, the use of this method of treatment will rather add to their prestige in the communities in which they practice, because of the church interest in it. It would be well, however, for prospective investors in this "exclusive right" to realize the position that the company has come to occupy in recent years and to appreciate at their proper value the advertising methods which have given them such unenviable notoriety and have withdrawn from them the sympathy of so many of those who were originally interested.

ECHOES AND NEWS.

NEW YORK.

Appointment at Craig Colony.—Dr. L. Pierce Clark, of New York, has been appointed Consulting Neurologist at the Craig Colony for Epileptics at Sonyea, N. Y.

Another Tent Hospital at Coney Island.—Announcement is made by Dr. John F. Fitzgerald, medical superintendent of the Kings County Hospital, that a tent hospital at Coney Island for tuberculous children will be established this summer by the Department of Public Charities. A tent has been ordered which should be in place by May 1, and at least twelve tuberculous children will be cared for along the lines successfully carried out in the tent hospital at Sea Breeze by the New York Association for Improving the Condition of the Poor.

Housing Conditions as they Affect the Wealthy.—The menace to the well-to-do from the unsanitary housing of the poor is being brought home to the public by various investigators and settlement workers. It is not a particularly altruistic appeal, but may prove effective where such a one would fail. At a fashionable gathering in New York not long ago a speaker, after portraying the desperate conditions under which some tenement-house manufacturing is still carried on, offered the remark that probably every person in her audience had on some article of clothing which had been handled under such conditions. And the published photograph of a woman in the last stages of tuber-

culosis, sewing on fancy collars in a room which daylight never enters, ought to have some effect outside of cutting down the sales in the ladies' neckwear department.

Hospital Appointments.—The following men of the University and Bellevue Hospital Medical College have been appointed to hospitals: *Bellevue Hospital, Third Division*, J. P. Hunt, C. J. Goeller, E. R. Crowe, F. M. Kempf, L. B. Rogers, I. M. Vanderhoff. *St. Francis Hospital*, First, A. L. Denchfield. *Mt. Sinai Hospital*, A. A. Epstein. *Sydenham Hospital*, A. Hertlich. *Lynn Hospital, Lynn, Mass.*, C. L. Hoitt. *Marine Hospital, Stapleton, S. I.*, R. Knowles. *Workhouse Hospital, Blackwell's Island*, L. W. Locke, B. L. Wyatt, J. J. Rand. *City Penitentiary Hospital, Blackwell's Island*, G. C. Lyons. *J. Hood Wright Hospital*, J. F. Sharpe. *St. Vincent's Hospital*, G. R. Stuart. *Brooklyn City Hospital*, McW. B. Sutton. *St. Michael's* First place, *Newark, N. J.*, J. C. Winans. *City Hospital, Blackwell's Island*, R. J. Wrenn, H. C. Cook. *Gouverneur Hospital*, L. H. Lohmiller. *Kings County Hospital, Brooklyn*, F. C. Howard. *Post Graduate Hospital*, Eugene Calloway.

Witnesses of Accidents.—The only place in this town where it is easy to secure the names of witnesses to a street accident is on the lower East Side. Down there everybody living within two blocks of the scene of disorder is anxious to be put on record as an eyewitness, and they swarm around the disabled truck or refractory car, fairly fighting for a chance to tell the inspectors what they know about it. Sometimes they don't know anything, but that doesn't matter. What they did not see they can "make up." However, this manufactured evidence is generally detected as spurious by expert officials, consequently it is seldom that any one is either harmed or benefited by imaginative testimony. In other parts of the city the difficulty of getting at facts is of another kind. There curiosity seekers who have run a block to see a smash-up will run ten blocks in the other direction to avoid being summoned as witnesses. Through this reticence an injustice is no doubt frequently perpetrated, but that consideration in no wise affects the wary spectator. He doesn't want to talk, and unless subjected to powerful pressure, he doesn't talk.

Filth in Country Dairies.—Some shocking conditions have been discovered by the Board of Health inspectors in dairies that supply New York City with milk. Buildings have been found in Dutchess and Orange counties too filthy for the habitation of beasts used for dairy purposes. Wooden floors rotted with the milk drippings of years over dank, foul cellars, floors of ill-fitting stone slabs laid on the earth, ancient wooden cooling tanks saturated with filth, wooden open drains and contaminated wells are some of the things reported by the inspectors in about one hundred small dairies. New York residents, however, can take comfort the fact that these dairies form only a small percentage of those that send milk to the city. Most of the dairies are in excellent condition, according to Dr. Walter Bensel, assistant sanitary inspector of the department, and not a few are as perfect as care and science can make them. The bad cases discovered are worse than anything recently recorded, but they are isolated, few in number, and will be improved or closed up. The railroads that bring most of the milk to New York—the Erie, the New York Central, the Delaware and Hudson, the Ontario and Western, and the Delaware, Lackawanna and Western—are helping the Board of Health in a general crusade against the sources of contaminated milk.

PHILADELPHIA.

German Hospital Reports.—During the month ending April 20, 1905, 262 patients were admitted to the German Hospital, and 255 were discharged as cured. In the dispensary 4,200 cases were treated.

The Medical Club of Philadelphia Entertains.—On April 28, 1905, the Medical Club of Philadelphia gave a reception at the Hotel Walton to Dr. König, President of the Pennsylvania State Medical Society.

An Epidemic of Cerebrospinal Meningitis Feared.—The health authorities of Wilkesbarre are very much exercised; they fear that this disease will become widespread at a place named Breslau because of the fact that at least 65 school children kissed a child dead of this disease.

Typhoid Fever Closes a School.—Upon the advice of the Board of Health, the Camac Kindergarten was closed indefinitely because a case of typhoid fever developed in the family of the janitor, who lives in the same building. Last week 289 new cases were reported to the Board of Health; most of them came from the northeastern part of the city.

Section on Medical History of the College of Physicians.—The organization of this section of the College of Physicians took place April 24, 1905. The scientific program was opened by Dr. Roland G. Curtin, who read a paper on "Æsculapian and Modern Health Resorts Compared." Dr. William Pepper then showed lantern slides illustrating the early history of the medical department of the University of Pennsylvania. Dr. A. Jacobi then read a paper on "The Most Eminent American Physician of European Birth." This section will meet every fourth Monday of the month except July and August.

Philadelphia County Medical Society.—This society met April 25, 1905. The scientific program was opened by Dr. Carl Beck, of New York, who, by invitation, read a paper on "The X-ray in the Diagnosis of Tuberculosis of Bones and Joints." Dr. G. E. Pfahler, by means of negatives, illustrated the site of the lesions of tuberculosis of lungs with reference to diagnosis of the disease. Dr. W. S. Newcomet then read a paper on "The Treatment of Superficial Tuberculosis." Dr. Henry K. Pancoast read a paper on "The Treatment of Deep-Seated Lesions of Tuberculosis." The discussion was opened by Dr. W. L. Rodman; it was continued by Dr. S. Solis-Cohen, Dr. Judson Daland, Dr. J. B. Shober, and Dr. M. K. Kassabian, who exhibited negatives taken at the Philadelphia Hospital.

Judge's Decision Renders Relatives of Insane Liable to Payment for Treatment.—According to the Act of May 21, 1889, which provides that the expense of the care and treatment of indigent insane in the State Hospital shall be fixed at the uniform rate of $1.75 per week, many of these patients should have been and should be supported by the relatives instead of the county. Judges Beitler's decision, rendered in the case of Henry M. Tait, whom John R. K. Scott asked to be committed for refusing to obey an order from the court to pay for his wife's treatment in the insane hospital, will tend to enforce the above act and relieve the county of considerable expense. Mr. Scott takes the ground that the county is now paying for patients in such institution instead of relatives who are well able to do so.

Philadelphia Neurological Society.—At the meeting of this society, which was held April 25, 1905, Dr. Wm. G. Spiller exhibited a "Case of Amyotrophic Lateral Sclerosis Associated with Long Standing Anterior Poliomyelitis. Dr. Wm. Zentmayer exhibited a "Case

with Unilateral Exophthalmos and Extensive Involvement of the Cranial Nerves." Dr. Thos. J. Orbinson read a paper on "Delusional Insanity of the Persecutory Type with Cyclical Relapses." Drs. Chas. S. Potts and Wm. G. Spiller read a paper entitled "Pseudosclerosis; Report of a Case with Autopsy." Dr. Chas. W. Burr and Dr. C. D. Camp then read a paper on "The Causes of Triplegia." Dr. J. H. W. Rhein reported a case of "Syphilitic Encephalitis and Double Hemiplegia with Necropsy." Dr. R. V. Patterson reported "Two Cases of Korsakoff's Psychoses, one with Autopsy."

Bills Approved by the Governor.—The first bill approved by the Governor abolishes the present State Board of Health and substitutes a Commissioner of Health with an Advisory Board. The Commissioner is appointed by the Governor; he must be a physician who has had ten years' professional experience, and must be a graduate of a legally constituted medical college. His salary will be $10.000 and expenses a year. Dr. Charles Penrose, brother of Senator Penrose, and Dr. B. H. Warren, the present Dairy and Food Commissioner, have been named as candidates for the position. The Governor also approved the bill prohibiting the use of preservatives in foodstuffs. According to the bill any one caught selling articles of food containing boric acid, formaldehyde, the sulphites, sulphate of copper or any of the coal-tar products will be fined or imprisoned.

A New Hospital for the Treatment of Diseases of the Alimentary Canal.—The object of the institution is to provide comfortable surroundings and proper food for poor suffering with cancer and other chronic diseases of the digestive tract. To establish a well-equipped laboratory for research work to determine adulterations of foods. To establish a school of dietetics, in which free instruction to the public will be given. The following were elected as Board of Managers: Clayton McMichael, G. Heide Norris, Henry R. Edmunds, Dr. Lewis Brinton, Henry A. Fry, Rev. Herman L. Duhring, William N. Ashman, Charles C. Newton, Dr. James McAllister, William R. Verner, Samuel H. Cramp, J. P. Brinton and Barclay H. Warburton. The medical staff will consist of Drs. John B. Deaver, D. D. Stewart, John B. Shober, Sherborne W. Dougherty, James Thorington, George B. Wood and Lewis Brinton.

The Housing Problem in Philadelphia.—The question of the housing of the poor develops different phases in the various cities, and it seems that the peculiar difficulty in Philadelphia arises from the very precaution which its founder took to secure light and air. The large blocks intended to provide lawns and gardens for the dwellers in the City of Brotherly Love have lent themselves with fatal readiness to being cut up and penetrated by blind alleys and walled-in courts, bringing about a condition of disease and danger which would vie adequately with the dumb-bell tenements of New York. The tenement houses are not built so high as in the latter city, but that very fact fosters overcrowding, and a condition has developed which calls imperatively for remedy. A tenement-house bill has been introduced in the legislature, as a result of recent investigation, but is meeting with determined opposition from interested parties.

Pathological Society of Philadelphia.—At the meeting of this society, which was held April 27, Dr. James Ewing, of Cornell University, New York, read a paper on "Some Aspects of the Problem of Immunity in Typhoid Fever." During the course of the paper he noted that the immunity in this disease involved the destruction of the bacteria in addition to the toxins and those within the cell of the bacteria. The cause of the fatal issue in that condition termed "Sterile Death" is due to the endotoxins which are elaborated by the dissolved bacteria and against which immunity cannot be produced. They are similar in nature to those obtained by Vaughan from the colon bacillus. Vaughan states that tolerance can be produced toward these toxins but up to the present time immunity has not been produced against them. Dr. Ewing stated that the amido products in the body are oxidized and thus rendered harmless. The living bacteria, he maintained, destroy the red blood cells more rapidly than the toxins and that the red blood cells and the tissue cells are destroyed by the toxins. The albumoses, he believes, must occupy a prominent place among the toxins. He intimated that recovery from typhoid depended upon something more than the mere bactericidal properties of the blood serum, and that the severity of the disease depended upon something else than the number of bacilli in the blood. The typhoid state, he takes the ground, is due to the toxins resulting from the degenerated and necrotic tissue. The paper was discussed by Dr. A. C. Abbott, Dr. Ravenel, Dr. Riesmann.

CHICAGO.

Swedish-American Hospital.—Plans have been in preparation for the erection of a new hospital bearing this name at Green and Sixtieth streets, at a cost of $100,000.

Erection of New Hospital.—April 21, the first spadeful of earth in the excavation for the new Michael Reese Hospital was turned by Isaac Greensfelder, who, it is said, performed the same office when the original building was begun a quarter of a century ago. The new hospital will cost $475,000.

Smallpox.—It is said that there are 93 smallpox patients in the isolation hospital up to this writing, the largest number ever under the care of the staff at one time. It is also the largest number of smallpox victims which the city has had on its hands in one day for ten years, since the epidemic of 1895. But no alarm is felt by the health authorities, as many of the cases are recovering and several of the victims are nearly ready to be discharged.

Free Lectures on Health Topics.—The Chicago Medical Society has rendered a distinct service, both to the public and to the department, by its course of free popular lectures on health topics. The last of these for the season— on "Vaccination and Smallpox," by Dr. Heman Spalding, Chief Medical Inspector of the Department, and on "Epidemic Cerebrospinal Meningitis," by Frank Billings—were especially timely and valuable. That by Dr. Billings has already done much to allay the popular and professional dread of an unfamiliar, and, therefore, a terrorizing disease, which has been unduly exploited alike in the secular and in the medical press.

Results of Dairy Inspection.—A marked improvement in the conditions of milk production in the Chicago milk zone is shown by the dairy inspections since the first of the year. Of the 2,857 dairies inspected during 1904 there were 544 found feeding "wet malt," and among the herds so fed there were found 152 diseased cows. These animals, suffering from tuberculosis, anthrax, actinomycosis, etc., were killed and cremated, and the milk from 544 dairies was excluded from the Chicago market. The proportions were 19.11 per cent. of "wet malt" and 0.25 per cent. of diseased cows. In the inspections made since the first of the

current year the proportions found have been 14.23 per cent. of "wet malt" and 0.19 per cent. of disease—an average reduction of a little more than 25 per cent. in each.

State of Chicago's Health.—After a briefer term than usual, pneumonia again yields to consumption as the principal cause of death, according to the bulletin of the Health Department. During the week there were but 72 deaths reported from the former and 78 from the latter disease. Between November 1, 1904, and April 22, 1905, a total of 2,489 deaths were reported from pneumonia and 1,583 from consumption, these figures showing 556 fewer pneumonia and 75 more consumption deaths than for the previous corresponding pneumonia season, when the totals were 3,045 pneumonia and 1,513 consumptive deaths. The decrease of pneumonia has been the chief factor in the reduced general mortality rate of this period. During the 175 days ended April 23, 1904, there were 14,741 deaths from all causes reported; during the corresponding period ended April 22, 1905, there have been 13,387 deaths from all causes reported—or 1,454 fewer, of which number 556 were of the pneumonia deaths.

GENERAL.

The Ethics of Medicine.—Dr. Richard C. Cabot delivered a lecture on "The Ethical Forces in the Practice of Medicine" in Phillips Brooks House, Boston, on Thursday, April 13. This was the first of a series of lectures that are to be given in the next few weeks on the ethics of the professions.

American Society of Clinical Surgery.—The meeting of the American Society of Clinical Surgery was held in Boston at the Massachusetts General, Boston City and Carney Hospitals, during the days of April 21 and 22. A program of a distinct practical nature was arranged for, consisting of operations at the three hospitals and demonstrations of rare and interesting cases.

Cocaine Legislation.—The New York Pharmaceutical Association has petitioned the legislature for a law to restrict the use of cocaine in catarrh snuffs and the like, and the bill is now in committee, of which Mr. Sheldon is chairman. It is alleged that many instances occur in which the cocaine habit is established involuntarily by the use of these snuffs, and that the manufacturers intend to make every effort to block any legislation aimed at the sale of such preparations.

Connecticut River Valley Medical Association.—The annual meeting of the Connecticut River Valley Medical Association will be held at Hotel Windham, Bellows Falls, Vt., on Tuesday, May 9, 1905. These papers will be read: "Some Indications in Operative Obstetrics," by Dr. J. B. Hyland; President's Address—"Puerperal Infection," by Dr. W. F. Hazelton; "Pneumonia and Its Management," by Dr. H. L. Waterman; "Diagnosis of Acute Abdominal Affections," by Dr. H. G. Stetson.

The Meningitis Situation.—Cases of meningitis continue to come into the hospitals of Boston. There are many at the City Hospital, about twenty at the Massachusetts General and a slightly smaller number at the Children's. Diphtheria antitoxin is extensively used, at the Children's especially, where lumbar puncture is a more or less routine measure in such cases. This is given up in order to determine the results, if any, of the antitoxin. The mortality is not large; whether or not this is due to this method of treatment, however, is impossible to say.

Meeting of the American Roentgen Ray Society.—The sixth annual meeting of the American Roentgen Ray Society will be held at Johns Hopkins University, Baltimore, September 28, 29 and 30. Arrangements have been made for an excellent program and a large attendance is expected. The papers of the meeting for the first day will deal with X-ray diagnosis, and those of the second and third days will be therapeutic. There will also be an evening exhibit of lantern slides which promises to be extremely interesting. The Belvedere Hotel has been selected as headquarters.

Massachusetts Emergency and Hygiene Association.—At the meeting of the Massachusetts Emergency and Hygiene Association, Boston, at the home of Mrs. Kate Gannett Wells, 45 Commonwealth Avenue, Boston, Dr. James J. Minot was elected president, Miss M. O. Clark secretary, and Dr. Robert J. Loring treasurer. Miss Lucy Lowell was elected to the board of vice-presidents. Dr. A. K. Stone spoke on the training of the attendants. Mrs. Wells, for the committee on Charlesbank, stated that it was intended to keep the place open both winter and summer for children. Miss Annie E. Barbeau told of her work in connection with the playgrounds in schoolyards.

Plague's Ravages in Chile.—Passengers from Chilean ports, according to a despatch from Mazatlan, Mexico, to San Antonio, Tex., bring the first full information concerning the terrible ravages of bubonic plague in the city of Pisagua, Chile. For some time before their departure the deaths in Pisagua had ranged from ten to thirty a day, and the authorities were then unable to enforce burials. Bodies were thrown into the streets and spread contagion. But little headway had been made in the fight on the disease, and it seemed as though the entire population of that Chilean port might be exterminated by the plague. Many persons had been shot down by the soldiers on guard while attempting to escape from the stricken city.

Dr. Osler Urges Fusion of Colleges.—Dr. William Osler, in a farewell address to the Medical and Chirurgical Faculty of Maryland, in Baltimore, April 27, urged the fusion of medical colleges in this and other cities of the country. Medicine gives more hope for humanity than anything else, he said, and combination and reciprocity are the great needs. Reciprocity between the State Boards should be extended, for a man's activities should not be limited in moving from State to State. There should be fusion of medical schools. It is time that the homeopathic brethren were coming into the fold. A difference in drugs should no longer separate men with the same hope. The original quarrel is ours, but the homeopaths should not allow themselves to be separated by a shibboleth that is inconsistent with their practice to-day.

Medical School Courses.—Beginning next year fourth-year students in the Boston Medical School will choose all their courses under the elective system. Heretofore all work except courses amounting to three hours of examinations has been prescribed. The elective courses will be given as half-courses or as multiples of half-courses. Each half-course has a value of 125 hours, and eight half-courses are necessary to satisfy the requirements of 1,000 hours of work demanded in the fourth year. The two half-courses elected for the first two or the last two months of each half-year must be formed on the same plan in order to avoid conflict. Students wishing to specialize may elect more than one of the half-courses offered in a particular branch of medical study, but no student will be allowed to devote his whole year to one subject without the consent of the head of the department concerned.

Spotted Fever in Germany.—An intimate connection between influenza and spotted fever, or the cerebrospinal meningitis, now epidemic in Germany, is sur-

mised by some German investigators of the cause of the disease. Scientists appear not to be fully satisfied that the *Bacillus meningococcus* is the sole cause of the disease since the same bacillus is present in pneumonia. The so-called Pfeiffer bacillus which causes influenza has been discovered in a number of cases of meningitis. The epidemic latterly has assumed a more serious form in Silesia. In the Beuthen district out of twenty-eight cases seventeen deaths were reported for the week which ended April 26, and in the Kattowill district last week there were forty-seven new cases and twenty-seven deaths. Sporadic cases are now reported daily from nearly all parts of Germany, but the physicians do not fear a general epidemic. In Berlin and Dresden the population is greatly alarmed.

The Brooklyn Tuberculosis Campaign.—The formal organization of a Committee for the Prevention of Tuberculosis of the Brooklyn Bureau of Charities has been effected on the lines of that of the Charity Organization Society in Manhattan. On March 16 Dr. J. H. Raymond was chosen chairman, William I. Nichols secretary, and Miss Margaret D. Dreier treasurer. The committee was addressed at its first meeting by Dr. Hermann M. Biggs of the New York Board of Health, who gave an outline of the work which has already been accomplished in Manhattan. The first object to be attained in Brooklyn is the establishment by the Board of Health of a dispensary for the treatment of patients suffering from incipient tuberculosis. It is understood that the department is entirely favorable to this plan and that the necessary funds are available. As soon, therefore, as a suitable place is selected it is hoped that a dispensary will be established. All the members of the committee are deeply interested in the undertaking and are planning an active campaign of education which will be inaugurated by a public mass-meeting to be held in the near future and to be addressed by recognized authorities on the subject of tuberculosis.

Disease Peril in Cars.—In the course of his inquiries as to the possible spread of diseases over the country through the unsanitary condition of railway passenger and street cars, Surgeon-General Wyman of the Marine Hospital Service has received a large number of letters from health officers of the various States and cities expressing the almost unanimous opinion that many diseases are contracted by the traveling public through breathing vitiated air in the cars or by the reception into their systems of disease germs from others infected. Especially is this said to be true of tuberculosis. Health boards and health officers in almost all parts of the country are making strenuous efforts to remedy this great evil, but are hampered in their efforts by lack of legislation. Only one or two of the States have laws giving authority to the health boards to enforce sanitary rules and regulations on the railroads. C. A. Goodnow, General Manager of the Chicago and Alton, writes that his company has been experimenting with a new device, and that as it has proved satisfactory, the company doubtless will equip all its cars with it. The Pullman Company has appointed a Superintendent of Sanitation, whose special duty it is to make thorough and complete tests of whatever devices may be offered, until one is found that will prove satisfactory. Other companies are working along the same lines, and it is believed that the railroad authorities and the Health Boards, acting in harmony, will soon work decided changes for the better preservation of the public health.

The Almshouse Maniac in Maryland.—The report just issued by the Maryland Lunacy Commission is a plea that that State shall "range herself by the side of other progressive States, and pronounce most emphatically in favor of State care for the unfortunate insane," and this from a purely economical standpoint, regardless of humanitarian considerations. The issue is put tersely: "Under State supervision, entertainment, occupation, kindly care, scientific treatment; under the county system, no occupation or entertainment, negligent care, the women not safe from outrage, no treatment—which will the people choose?" The report shows that there were on December 1, 1904, 2,938 insane persons in Maryland. Of these 401 were colored. The insane have, in large part, been removed from the county almshouses, either to one of the State institutions or to the county asylums and the need is to make this reform general. While some two hundred and twenty remain in the almshouses, over a thousand are in county asylums or private corporate institutions. The worst feature, of course, lies in the almshouse care in institutions which are inaccessible, in dilapidated buildings, on farms which are poor farms in both senses of the word, and in company with the aged, and the paralytic, with epileptics, imbeciles, and mild dements. Illustrative cases are given by Dr. George J. Preston, secretary of the board, of acute cases of insanity treated in such almshouses, and they make a telling showing in support of State control. The secretary was asked to investigate a case in a county almshouse, and found locked up in an indescribably filthy room, a man who was cursing and yelling at the top of his voice, to all intents a wild animal. This man was removed to one of the State hospitals, where the secretary saw him shortly after his arrival and found him well-clothed, well-behaved and contented. The second case was also seen in one of the counties—a negro man, who was chained to a tree in summer and confined in a miserable improvised cell in winter. This man is now at one of the State hospitals, a well-behaved patient and a good worker. These were both incurable cases, and are cited to show the ameliorating effects of suitable environment.

Local Nurses for Beirut.—The Syrian Protestant College at Beirut is about to enlarge the scope of its activities by adding a training school for nurses, the only institution of its kind in Asia Minor. A medical department was established at the college in 1867, the year after the institution was founded, but up to the present there has been no place nearer than London where Eastern women could receive the scientific training which modern medicine demands from nurses. Miss Jane Van Zandt, who is to have full charge of the training school, sailed on the Slavonia on March 28. Miss Van Zandt is a graduate of the Post-Graduate Medical School and Hospital's training school for nurses of this city, and is a specialist in food for babies and children, to which more and more importance is being attached by physicians. Much difficulty was experienced by the trustees of the Syrian College in finding a suitable person to undertake the responsibility of inaugurating so radical an innovation in the East. It is probable that two or three other nurses will be sent out to assist Miss Van Zandt, who will also have the assistance of Mrs. Dale, the daughter of President Howard Bliss. She has been active in the work of the institution, and has the advantage of being a fluent Arabic scholar. The old Arabic science of medicine, which was once far in advance of European knowledge, has dwindled with the decay and overthrow of the empire of the Caliphs to a rudimentary acquaintance with the virtues of herbs, combined with frequent exorcising of the evil one. With such methods in vogue it is little wonder that the graduates of the medical department of the Syrian Protestant College are in de-

mand all over Asia Minor and Egypt. The work which is accomplished by this school can be better appreciated when it is remembered that with the exception of the Jesuit College at Beirut it is the only medical school in Asia Minor. No difficulty in obtaining pupils is expected, for within the last fifty years a remarkable change in the attitude of the Syrians toward education has taken place. Beirut is now once more a great educational center, as it was in the time of Justinian the Great, and is probably the most enlightened city of the Orient. As a race the Syrians, from whom the majority of new nurses will in all probability come, have retained the subtle, clever minds for which in the last days of the Roman Empire their theologians and philosophers were distinguished.

Meeting of the Suffolk District of the Massachusetts Medical Society.—The last meeting of the Suffolk District of the Massachusetts Medical Society, held in conjunction with the Boston Medical Library, was held April 29, 1905, at the library. The subject for discussion was typhoid fever.

Dr. F. C. Shattuck spoke on the treatment of this condition, outlining the course to be pursued in general, but emphasizing the need of individualization in each case. In regard to both he said that too often the object was to reduce temperature, and that a bath was considered successful when a large "drop" was obtained; he considers that it makes no difference whether there is a drop or not; the stimulating effect on the patient is the prime object. In some cases he advises alcohol sponges, and in others he omits baths altogether. The subject of diet was carefully gone into; he does not believe in a strict milk diet, but in most cases allows liquids and soft solids. As an important aid to convalescence he commences general massage as soon as the fever has subsided.

Dr. Maurice H. Richardson spoke on the differential diagnosis of a perforated typhoid ulcer from acute abdominal conditions. He first spoke of those cases where there was no doubt as to the diagnosis of typhoid, and then on the more difficult class where it was not certain whether or not the patient had typhoid fever. He then considered three conditions, simulating a perforation occurring in the course of a typhoid, illustrating this by cases, one where an acute salpingitis ruptured in the third week of the fever; another of appendicitis, and several of acute gall-bladder conditions.

Dr. Mark Richardson gave a most interesting paper, showing the results of his experiments in the serum treatment of this disease. He first used an antitoxin obtained from the blood of an immunized horse; lately he has been using the filtrate of a bouillon culture of typhoid bacilli. This when injected is supposed to cause to be set free at once a large number of antibodies, causing an initial chill and rise of temperature, followed by a sudden drop to about normal. Many of his cases clinically acted in exactly this way. His results, although very suggestive and encouraging, are not sufficiently far advanced as yet to prove anything.

Dr. Charles D. Easton read a paper on Urotropin in the Treatment of Bacillurea in Typhoid. He first spoke on previous researches and experiments along this line, and especially of work done by Dr. Mark Richardson on this subject. He then described his own experiments. Fifty patients were given urotropin until the temperature dropped, when it was withdrawn. Three days later they were catheterized as carefully as possible, and the urine examined for typhoid bacilli. The results showed very clearly the importance and efficacy of urotropin as part of the regular treatment of typhoid fever.

Underfed Children in England.—There can be no doubt, says the *British Medical Journal*, that one of the most important factors in influencing the physique of a nation must be the possibility of the children obtaining an adequate supply of suitable food. The education Committee, of Leeds, England, have made an inquiry through their School Attendance Subcommittee into the number of underfed children attending the elementary schools in the city. According to their report the number amounts to 3,245. Not only is the feeding of children during the school-going age of the utmost importance, but there ranks with it the feeding of the younger children and infants, and of the mothers during pregnancy and lactation. Dr. William Hall has, with every precaution to ensure a fair comparison, investigated the physical condition of groups of Jewish and Gentile children of the same age, and living under the same conditions as to locality and as to poverty. After the examination of some three thousand in all, Dr. Hall stated that the poor Jew was three pounds heavier and two inches taller than the poor Gentile at the age of eight; at ten years of age he was 6¼ pounds heavier and 2½ inches taller; and that at twelve he was seven pounds heavier and 1¼ inches taller. The teeth of all the children were examined and the condition of the osseous system investigated as far as possible, and Dr. Hall's report is that from six to thirteen years of age the poor Jew is much less rickety and has much better teeth. A great many of the Gentile children were mouth-breathers, but in his examination of the Jewish children Dr. Hall was struck by the size of the nasal chamber and with the breadth and flatness of the roof of the mouth, and by the absence of mouth-breathing. Dr. Hall claims this difference is due in great measure to the character of the nourishment supplied to them before and after birth. Among the class he has investigated the pregnant Jewess is better fed, and after delivery she usually nurses her child, being able to do so in a greater percentage of cases than her Gentile sister. After the period of lactation he has found that the dietary of the Jewish child is much more wisely devised. With the assistance of some philanthropic friends Dr. Hall has, during the winter months, been feeding some of the children of the poorest class in the city. He has made most careful measurements throughout the "treatment," and certainly his figures are surprising and encouraging, showing an average gain for children of seven or eight years of age of five pounds in the first two weeks. This extraordinary gain is attributed by Dr. Hall to the fact that the tissues of these half-starved children are ready to pick up nourishment with avidity. The results were obtained merely by assuring to each child one adequate meal each day. Later two meals were given, but at a cost of about ten cents for the two. No one who has followed Dr. Hall's work can fail to be impressed by the encouraging fact that children who have made a bad start in life, and who are living "on the edge of scurvy," may be, one may really say, rescued at the cost of ten cents a day.

"First Aid" in the Anthracite Mines of Pennsylvania.—Hundreds of lives will be saved, it is expected, in the anthracite coal regions of Pennsylvania through the action of the Philadelphia and Reading Coal and Iron Company in adopting plans to extend the benefits of the first aid to the injured system in the mines. The mortality list of the anthracite region each year is largely added to by deaths from wounds and injuries which are not necessarily fatal but which result in death because of the loss of blood and the lapse of time ensuing before skilled medical aid can be

secured. The method of handling injured men at the bottom of shafts and slopes has also been clumsy and helped to decrease the chances of recovery for an injured miner. The whole system of handling the injured has been revolutionized by the Reading company, and steps have been taken to organize first aid corps at all the collieries. About 200 young men will be enlisted in this work, and it is the intention of the company to reward them with appointments as assistant foremen. Dr. George H. Halberstadt, of Pottsville, has been delivering lectures on this subject to the employees of the Reading company this winter, and his organization of a model first aid corps at the Wadesville colliery and the gratifying results achieved led the company to decide to extend the system to all its mines. Surgeons at hospitals where patients have been received who were treated by the first aid corps organized by Dr. Halberstadt are unanimous in testifying to the value of the system, and several men already probably owe their lives to the aid thus rendered. It is considered certain that the plans outlined by Dr. Halberstadt will soon be adopted by every coal company in the country. When a man is injured the members of the first aid corps are instructed to respond to a call in double-quick time, carrying litter or stretcher and the box containing the bandages, splints, etc. Fractures of the foot, leg, thigh, rib, collar bone, arm and forearm, or injuries to the head are promptly dressed. For burns of the body a dressing of picric acid gauze is applied. The corps is also instructed in the means to be adopted to rescue a man from electrical contact, and is taught how to establish artificial respiration in case of suffocation from gases, of drowning and of suspended respiration from electrical contact. The corps has also been taught how one man can pick up an unconscious man, throw him on his shoulders and carry him away without any trouble; how two men can pick up and carry away an injured person, and how three men can do the same thing; how four men can take an injured person down a steep grade, and how to cross a fence or other obstruction with a litter; also how to put an injured man on a stretcher or a mule. How to stop hemorrhages in different parts of the body by the application of successive dressings, and, as a last resort, how to use either the tourniquet or an improvised tourniquet is fully understood by the corps, as is also the method of removing foreign bodies from the eyes, nose and throat. The special dressing box was devised by Dr. Halberstadt.

OBITUARY.

Dr. Juliet Potter Tiffany Van Evera, many years a professor of pediatrics in the New York Medical College and Hospital for Women, and a well-known practitioner, died of spinal meningitis at her home in Passaic Park, N. J., on Thursday, aged sixty-nine years. She was a pioneer in settlement work in New York. In 1866 she established for the Children's Aid Society a mission school at No. 327 Rivington Street, and later began a course in the New York Medical College, being graduated in 1872. In 1874 she was appointed an examiner in lunacy, being the first woman to hold that position in New York State. Failing sight necessitated her retirement several years ago.

Dr. John H. Hinton, one of the oldest physicians of New York, a friend of Joseph Jefferson and General Horace Porter, died in his seventy-ninth year at his home, No. 41 West Thirty-second Street, after several weeks' illness from dropsy. Dr. Hinton was graduated from the College of Physicians and Surgeons, and began practising medicine in 1854 in Fourteenth Street, but had been practising from his office in West Thirty-second Street since 1859. He was for a long time treasurer of the New York Pathological Society, treasurer of the Society of Widows and Orphans of Medical Men, and treasurer of the American Folk Lore Society. He was a surgeon in the army during the war between the States. He was a member of the Union League, the Grolier and the Players' clubs, and also of the St. Nicholas and National Arts societies.

SPECIAL ARTICLE.

THE OSLER DINNER.

On Tuesday evening, May 2, at 8 P.M., more than 500 physicians from many parts of this country, Canada, and one from Cairo, Egypt, sat down to the farewell banquet, given in the ballroom of the Waldorf-Astoria, in New York City. The guest of honor was Prof. William Osler and the occasion for the banquet his approaching departure to take up the duties of Regius Professor of Medicine of the University of Oxford. The occasion proved a most happy one, perfect in all its details, and the committee deserves the thanks of the medical profession for the care that must have been exercised to make the evening so thoroughly pleasant.

The toastmaster of the evening was Dr. James Tyson, of Philadelphia, one of Prof. Osler's oldest friends, and the one who wrote the letter of invitation that brought Prof. Osler from Montreal to Philadelphia, and gave him the opportunity for the larger career which has stamped his personality on American medicine.

Prof. Tyson said that Dr. Osler had very naturally, because of his career in Canada as well as in the United States, attracted the atttention of physicians all over the country in the broadest sense, and had had an influence wider than any other medical man of his generation. This influence is due not alone to his medical character, but to the breath of his intellectual sympathies and to the classical, biblical and poetic laws with which his name has always been associated, and which he knew so well how to make subservient to his purposes in the illustration of great principles of medicine. In introducing Dr. Shepherd, Dr. Tyson said that Dr. Osler's oldest friend would be better able than any one else to tell the story of the guest of the evening as a student and teacher in his younger days.

Student and Teacher.—Dr. F. J. Shepherd, of Montreal, spoke of Dr. Osler in Montreal, and said that in spite of the passage of thirty-five years since they graduated together in 1870, Osler looked no older, scarcely, and was not at all changed in disposition from the medical student that he at first learned to know. As a student Osler had been known, not for devotion to his books, nor as one whose main effort was to succeed in passing his examinations, but rather for his attention to the post-mortem room, and to whatever hospital work he could succeed in getting, though these features of the medical course were much less prominent than they are at present. While a serious worker, he was never looked upon as one of those who, in the modern term, was a "grinder," but on the contrary was known and loved for his social qualities, for the kindness of his disposition, and for the numerous friends that he made. In his young days there was the characteristic grain of humor that has so often been exhibited in after-life. While he did not graduate high in his class, there is especial note in the proceedings of the convocation, the Canadian name for commencement, which shows how thoroughly his medical

studies were appreciated by the faculty. A special prize was awarded to Dr. Osler's graduation thesis because of the originality it displayed and the research it evinced, and because of the collection of pathological specimens accompanying it, which were presented to the Museum. In the light of his after studies, it is interesting to note that some of these specimens, still in the college museum, concerned the ulcers of typhoid fever. When next Dr. Shepherd met Osler, he was engaged in writing the thesis of the Royal Society of England, of which he had become so highly honored a member. During his teaching days in Montreal, Osler was known for his devotion to his work and his faithful attendance at medical society meetings. His success as a teacher was in accordance with the efforts which he put forth and the interest displayed in his work. He became an inspiration for his students, and was able to rouse interest in original investigation on their part, such as had never before been seen. His personal magnetism enabled him to gather around him a group of young men, all of whom felt the precious stimulation of his own abiding interest in all medical problems. In other words, even in these early days before he was thirty, Osler displayed the qualities which later were to make his influence felt far and wide in the medical profession here in America. He did not allow his practice to trouble him very much at any time in Montreal, and if he kept office hours those at the college were not particularly aware of the fact. He never kept a chariot and, as he used to say himself, this was probably for the benefit of mankind, since those who ride in chariots kill their hundreds, while those who walk kill only their tens. His influence for good over the students in Montreal was felt far beyond the domain of their scientific education, and there is many a young man of those days who felt that he owed to Osler the turning point in his career that made him realize the value of high ideals in life. It is no wonder that he left Canada then with the good wishes of his colleagues in the college, of his students, old and recent, and of the medical profession who had learned to value him. Now that he has united the professions of the United States and Canada by the sympathetic qualities of his genius, his Canadian brothers will indeed welcome him back to the mother country, feeling that another stage of his evolution had been passed that would make him even more broadly useful.

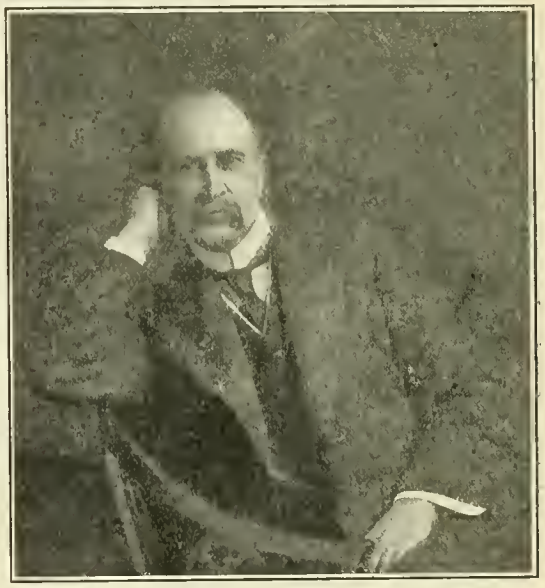
Dr. Osler in Philadelphia—Teacher and Clinician.—In introducing Dr. J. C. Wilson, of Philadelphia, who spoke to the toast of "Osler in Philadelphia as a Teacher and Clinician," Dr. Tyson said that though Philadelphia had long been considered the medical center of the United States, there was no doubt in the minds of those who were best in a position to know, that Dr. Osler's coming to Philadelphia marked an era in Philadelphia medicine.

Dr. Wilson said:

In the face of this program I cannot express surprise at being called upon to address you, nor can I indulge in the ancient apologies for lack of preparation for an unexpected honor. I may say to you, however, in confidence that for some weeks I have wondered why I was selected for this purpose and what I am expected to say. During this time I have often thought of the country minister who, finding himself somewhat ahead of his congregation, started to pray in the empty church with much fervor and in a loud voice for *force*. As he was about concluding one of his deacons, coming in, said to him, "Parson, you are praying for the wrong thing; you don't want *force*, you want *ideas*."

We cannot think of Dr. Osler in Philadelphia without thinking of him before he came to us and since he left us. His whole previous career was a preparation for his work there; his half decade of work there was, it now seems, a necessary period of training for the great decade and a half at Johns Hopkins, and the rounded half century since he left off knickerbockers a complete and progressive course of development and preparation on this side the Atlantic for the crowning period of an illustrious life upon the other side. No part of it could have been left out.

Shakespeare's "Home-keeping youth are ever dull of wit" has the fault of most sweeping generalizations. It is true, they mostly are. But not always. It depends upon the home. Populations have left New England, but who ever heard of anyone leaving Boston? Yet the Boston wit retains the old flavor. From most other places the bright spirits migrate. It has been said that the test of the true American is the impulse to move on. If this be



William Osler, M.D.

true, Dr. Osler is the very type of an American. And the remarkable thing is that the further he moves the more he is missed. There is no authentic record of the state of mind of that far settlement of Ontario which he left in early infancy nor of the nature of the repast by which his departure was celebrated. But when he left Toronto there was tears and sorrow and something to eat, and when he left Montreal, the same with singing, and when he took his departure from Philadelphia we had emotions which we could not suppress, together with terrapin and champagne; and now that he is going to leave the country there is universal sorrow and the largest medical dinner ever cooked. Yet there he sits, the embodiment of that imperturbability which he has so charmingly described as a medical accomplishment, but which we know to be essential to the mental make-up of a peripatetic philosopher.

I may be permitted to speak of Dr. Osler in Philadelphia from two points of view: First, the influence of our quiet Quaker life upon him, and, second, his influence upon us.

First, then, we at once sought to make a practitioner of him. But of that he would have none. Teacher, clinician, consultant, yes, gladly; but practitioner—no! and that with emphasis. This was partly due to his knowledge of affairs, partly to his temperament. One star differeth from another star in glory. His light was to be bright and guiding and seen of all men. Not for him the dim and shaded light of the sick-room, the patient daily service to the weary sufferer, the tiresome round of daily calls, and vexatious failure of the approved method to accomplish the desired result. He recognized his metier and carried out his plan. And this gave him time and opportunity and of both he made supreme use.

To an institution traditions are what character is to a man. The traditions of the University of Pennsylvania deeply impressed him. Morgan, Shippen, Kuhn, Rush, Caspar Wistar, were to him living personalities. His actual associates were such men as Agnew, Stillé, Leidy, Pepper and others whom we all know. The lives and characters of these men were not without influence upon the young Canadian, trained in the best way by association with men like Bovell, Howard and Ross, and familiar with the best methods and results of British and Continental Medicine.

Not less important was his connection with the College of Physicians, with its cherished traditions and magnificent library. Nor is the part played by the Pathological Society to be overlooked. Here he brought his best work, the result of long and keen study, illustrated by the findings in the post-mortem room at Blockley, and always met in large measure the sympathy and admiration of the younger men.

So from point to point during the five years he was with us, at the best period of his life, he found the stimulus of tradition, of opportunity and of appreciation.

What did he do for us? He made himself agreeable to the older men and demonstrated to the younger men how medicine should be learned and taught. He broadened our conceptions in regard to the inductive method in medicine. Facts, facts—always the facts. The facts of the ward, of the microscope, of the laboratory, of the post-mortem room. He made it clear to some of the younger men who are now reaping the reward of their work that it is not necessary for every man to be a practitioner in the ordinary sense, but that long years of hospital and laboratory work constitute a better equipment for the teacher and consultant. He inspired his students with enthusiasm for letters and taught them the rare rewards that come of searching the medical scriptures. He showed that in the democracy of our profession any man is free by a principle of self-selection, to attain the most coveted post of distinction and honor. He pointed out not only to us but to all men how fine and noble the profession of medicine is for those in it who are fine and noble.

He ornamented his discourse with quaint allusions to Holy Writ and The Pilgrim's Progress, but did not in those days say much about Montaigne and the Religio Medici and rarely alluded to Plato or Marcus Aurelius. Nevertheless he helped some of us to do a little thinking.

At length, after the fashion of the nautilus, he builded a more stately mansion and left us. We would have fain kept him. But that could not be. Without him the Department of Clinical Medicine at Johns Hopkins, mother of many teachers, might have been childless.

The Old World has given to the New many and great physicians. But these gifts have been returned not so much in number as in kind. The father of Brown-Sèquard was a Philadelphian. Marion Sims passed many years and did much of his best work in London and Paris, and now to the list is added another imperishable name.

I asked a bit ago who ever heard of anyone leaving Boston. There is one famous case—a Boston boy who became the greatest American. There are points of resemblance between that great philosopher and this great physician. In both are manifest vigor of body and intellect, untiring energy, unflagging interest in things and men, manysided knowledge with the wisdom to use it, that quality known as personal magnetism and the gifts of leadership. Philadelphia is fortunate to have been the home of Franklin and the abiding place of Osler.

There are many things that I could say of Dr. Osler, were he not here, that I will not say in his presence. What we leave unsaid he must take for granted. When we are deply moved we do not say the thing that is next our heart. We take refuge in commonplaces, in persiflage. It is an Anglo-Saxon—an American trait. I speak not as a Philadelphian but as an American, when I say that it is a good thing for us that he came among us. Not only by precept but also by example has he been an uplifting influence in our professional life. How far-reaching that influence is this company attests. There are men here who have crossed a continent to break bread with him to-night. The source of that influence is to be sought not merely in his accomplishments as a physician, not in his learning, not in his wisdom, not even in his well-balanced and buoyant temperament, but in that basic principle which all recognize but none can define, which for want of a descriptive name we call character. It is character that tells and to character all things are added.

Now that he is going away we note that he has a trait that so many of us lack—greatness in little things—method, system, punctuality, order, the economical use of time. These have been the handmaids to his greater gifts. These have enabled him to widen his usefulness to lands beyond the seas.

"Seest thou a man diligent in his business? He shall stand before kings."

Dr. Osler in Baltimore—Teacher and Consultant.—Dr. William H. Welch, of Baltimore, spoke to this toast. He said that it is always hazardous for contemporaries to attempt to pass judgment on those with whom they have been brought intimately in contact It always seems worth while, however, that a generation should realize what it considers the value of the work of the men whom it most admires and the reasons for that admiration. It would indeed be a precious document if we could have some idea of how much the medical men of his generation thought of Sydenham, and if we could have some notion of the way in which they regarded his ideas, practical, scientific and ethical. We are then making history for a future generation, and there is no doubt that the man who is being honored to-night exemplifies the highest ideal of the medical profession in his generation. When sixteen years ago Dr. Osler came to Baltimore, the main purpose of the faculty was that the hospital should be an integral part of the medical school, and that opportunities should be afforded for higher clinical training. It seemed for

this purpose that students should be made a part of the machinery of the hospital, and it is to Osler that the working out of this part of the plan is due. This indeed represents his contribution to medical teaching here in America. He had stood out originally for a broader preliminary education, for the improvement of medicine than had been the custom before, though he had realized also that many of the men who had done well in the past had succeeded in doing so even with the drawback of defective education. When it is announced that only those holding college degrees would be admitted as students at Johns Hopkins Medical School, he said jokingly, "Dr. Welch, it is a fortunate thing that you and I come in as members of the faculty, otherwise we might not be able to secure admission to the school at all."

His most striking contribution to the life at Johns Hopkins has been the interest which he has aroused among the students and the personal influence which has enabled him to bring out in them the best of their intellectual and moral points. It is no wonder that his students love to call him Chief, for even the medical profession of the country has learned to have something of that strange feeling toward him, and he has done more than any other American medical man of our generation to bring harmony into our professional ranks. The spirit of friendly cooperation which characterizes the medical societies of to-day is due not a little to Osler's incentive and to his genial qualities. His personality was constantly felt as that of a friend rather than a teacher, and his friendliness was marked by some delicious traits of humor. In Baltimore, he will be very much missed for this as well as for his great teaching qualities. No more will Dr. Thayer come home at one in the morning from some medical meeting to find the placard on his door announcing that he does medical practice for fifty per cent. less than any one else in the neighborhood, and when Dr. Opie comes to town, there will be nobody to tell the reporter of his distinguished athletic prowess, the many medals that he holds for athletic events. Many a joke has Osler played on the reporters, but they have more than repaid him in recent times, although it was all unconsciously.

Dr. Osler—The Author and Physician.—Dr. Abram Jacobi, of New York, spoke to this toast. He said:

Years ago, on some public occasion, the subject of to-night's onslaughts commended me for having passed six years of my post-graduate existence without writing, or rather publishing a single line, and seemed to congratulate those whom it might concern, upon my discreet literary behavior then and ever afterward. Him, however, I praise for having written and not ceased to write these several decades; for him art has certainly been long and opportunities he has not allowed to be fleeting. Indeed the better part of an afternoon I have spent at the library of the New York Academy of Medicine in the pleasurable occupation of copying the titles of his books, and lectures, and addresses, and pamphlets, and papers.

But lo and behold my disappointment. Part of his books, of which there are, after all, only a dozen or thereabout, in fifty or more editions, he has not even produced himself. For you will admit, and he must confess, that it is only the first editions that should be credited to the author; all the subsequent ones are due not to him, but to the greediness of the public. There are even those who pretend to know that he is no better than a tiro in publishing, in that he never had title pages ready for binding, after every fifty sales, with the inscription: "second thousand," "twentieth" or "ninetieth thousand."

Of cyclopedias and translations he kept going or aided in keeping going, I counted only fifteen; his shortcomings, however, are most surprising in connection with his sterility compared with the rest of the world's journalistic output. We take in the New York Academy's library one thousand medical (excuse the word, it does not always fit) magazines; the affliction of the Surgeon-General's library is still more deplorable. Now imagine there are many hundreds of them to which Dr. Osler never contributed so much as a line or as a "how do you do." Indeed, I could not mention the names of more than forty (British and German included) that can boast of his name on their indexes.

You see, therefore, that you have reason to be displeased with some shortcomings of the much-praised and much-loved man. For there are really a great many things he has not said—the James Jeffries of the perilous yellow variety of the press had to do it for him; many things he has not done, many books he has not written and many addresses my "equanimity" is reluctantly forced to admit he has not delivered.

You all remember that your friend Horace, when you were young with him, said it was difficult not to write a satire. On the strength of that he found it easy to write as many as eighteen and cut right and left. Our criticism of our guest should, however, not be altogether adverse; indeed there are six hundred here who are of the opinion that no encomium heaped on this friend of ours exaggerates his deserts. Still I know how to excel Horace, for though it be ever so difficult not to pronounce a eulogy, there will be no eulogy of mine here to-night.

I want our guest to feel comfortable among us. That is why I shall become as little personal as possible; and as the occasion is propitious and you are bound not to interrupt me except on the strongest of provocations I shall merely try to draw the picture of a medical man such as I have carried in my mind all my life as an ideal to be coveted but never to be realized by any but the physician whom, provided he is at the same time a "philosopher," Plato calls "godlike."

Let us imagine a boy with a healthy body, a sturdy heart and an open mind, with as thorough a general, in part classical education as the training of two decades will afford. His information is drawn both from books and through his trained senses. That young man's inclinations will be toward natural sciences, anatomy and biology; in his clinical studies toward etiology. Perhaps he remembers from his Aristotle, that "whoever sees things grow from their origin, will appreciate their nature and beauty" and is slow to stop before a problem that appears to be beyond solution. His clinical work as a student and a graduate will be carried on upon the same lines. In late years his hospital will continue to be a school to him, but at the same time a temple, at whose doors he will leave behind him selfish motives; he will give the same time and attention to the poor that he bestows on those outside; where he looks for knowledge he will do so without making the patient recognize that he is a means to an end; he never forgets that the poor in a hospital, cut off from the world, has nobody to rely upon but his doctor; and his soul goes out to those who suffer most. Indeed, let us

of the hospitals not forget that. In that way two thousand years ago Christians were made, and nowadays socialists and philanthropists. Many of those who greet us with hungry looks are dying or going to die. Indeed, "morituri nos salutant."

In his private relations he will prove what he is, a gentleman. The Molière period of wigs, and big talk, and sophistical bravado, the food of the credulous, has or should have passed. Still, you know there is much credulity left amongst the well clad and well fed classes whose education is limited to what their mental blinders allow them to see, inside and outside of legislatures. There would be less of it if medical men would talk to the people less Greek and Latin after the fashion of an ill—or overtrained nurse, and more common sense in an intelligible language. Indeed, it is easy to explain in simple words what we so clearly understand ourselves, even to a legislative committee solemnly considering the needs of the people. To that class of plain speaking osteo- and kinesipathy do not belong. That is why they mean nothing beyond ignorance and quackery.

While doctoring with therapeutics, remedial and other, our man will sustain his patient with words and looks coming from his heart, making no cheerless prognoses within hearing, and though his own temperament and foreboding be gloomy, not letting the patient suffer from that source. For, indeed, there are those who, like Osler's friend and companion, Thomas Brown, are of the opinion that "mundus non tam diversorium quam nosocomium videtur, moriendi potius quam vivendi locus." The world is less a place of delectation than a hospital, more a spot to die than to live in. In consultations, before and after them, he cannot help being strictly ethical. While he recognizes his duties to the patient, he owes regard and respect to the colleague. The complaint you sometimes meet in the lay public, that there is too much etiquette among doctors, is flimsy. I wish there were more of it. No patient was ever harmed by the attendant or consultant behaving like what they are, or should be, gentlemen. A consultation should be a pleasure, a lesson, and a support to the attending physician. What our friend practises himself he will teach his students in few words, but incessant examples. Perhaps he remembers his Seneca: "Longum iter est per præcepta, breve et efficax per exempla." Precepts travel slowly, examples swiftly, by a short and efficacious cut. There was my good old Frederick Nasse; his kind looks and words, his gentle smile—they have all gone these fifty-four years, but are ever present to my mind. At the bedside, in the quarters of the city poor, or in the wards, he was the friend of the sick, our friend, with the same kindliness, geniality and urbanity that have since warmed my soul in the hospital wards of—Johns Hopkins.

As he instructs students, so he teaches his colleagues in the profession and in professorial chairs. In so doing he is always kind, but not always in *their* way. Amicus Plato sed magis Amicus veritas. He loves Plato, but what he loves more, is truth. As a member of medical societies he is active, no committee work is shunned though a smaller man might do it, nobody is more energetic in filling the program of an evening, nobody more conscious of the good medical societies can do to themselves, their members and the public, and nobody more eager to disseminate his own convictions of their important functions.

This teaching, however, is not limited by the fences of his acre or his town. He is of the apostles who are told to travel and instruct and edify. He goes round about the villages teaching. He is here and there and everywhere obeying the invitation of those who want to look into his eyes and listen to the spell of his voice. A thousand miles are to him like one. To him medicine is no private or narrow business; he is the statesman in medicine which to him is not a trade, but a vocation and a religion.

I take the man I speak of to be an American, one of us. He looks about and finds it is not all that is good. Having spent his labor, time and genius on improving his facilities of teaching and learning, he may succeed to the extent of his own locality and school, but he cannot change what must be brought about by the slow progress of laborious and general evolution. When he says publicly and as often as he thinks it may do good, not that we have no great men nor efficient teachers, but that clinical facilities and methods of almost all our undergraduate schools are behind what they were in Europe fifty years ago, he is found fault with, perhaps ostracised. The least that is said against him is that he betrays our secrets to foreign lands. They forget that it is not he that betrays our conditions, it is our students, our young graduates who, by crowding into our own post-graduate and European clinics proclaim as it were from the housetops that they came to seek what they lacked at home. You must have noticed that the emigration to Europe of our laboratory students is no longer as numerous as it was years ago, but the search for clinical advantages has not abated. So if you meet a preacher in the desert, do not stone him. In ten years, or twenty, we shall admit he was right. Perhaps it may dawn upon some of us that what we took for invective, was the sensational lie of a penny-a-liner spy, and what our distrust mistook for a frown was the pity and sympathy of a humorist.

As he works for the future so he looks back into the past. A science, a profession is best understood when studied in its origin and gradual unfolding, like the human organism, which is never comprehended except through the study of the embyro and the child. The history of medicine is to him, however, only a link in the chain of human events, one of the most important parts of universal culture, in which wars and kings are only upheavals and incidents. That is why it should be studied by the people at large as a part of their education. It will be understood when presented in a comprehensible form. You all remember the classical histories written by William Osler on the internal medicine, and by W. W. Keen on the surgery, and R. T. Chittenden on the physiological chemistry of the nineteenth century, and published by the *Sun* four years ago. My medical ideal does much more. The loving connection between medicine and the world, between the profession and the public is not platonic, it is active. Being a conscientious citizen of the profession he feels his obligations as a citizen of the state and of human society. He will work for the consolidation of the profession, for the suppression of quackery and all other forms of infectious disease; for the improvement of our school system, our streets, our subways and water supplies, for the repeal of bad laws, and the introduction of good bills.

That is what your ideal medical man will do. Smaller men must be satisfied with performing only a share of it. But none of us here or elsewhere has a rigth to shun common duties. Next to performing great tasks is for us who cannot reach the highest aims, the ambition to work in their service. Ideals are not reserved for those who walk on the mountain tops of human existence. No man or woman should be without a heart, nor without an ideal, and the sense of responsibility to the Commonwealth of which they form a part.

Doctor Osler! Have I involuntarily drawn some, or many, or most of the outlines of your picture, or have I not? I do not know, but I could not help while speaking, beholding you before by mind's eye. Still, being neither an orator nor a poet, nor a savant like yourself, I know my language cannot reach my aspiration nor your deserts. Do not explain, or excuse, or deny, either seriously or humorously. Your natural gifts you are not responsible for, so there is really no need of an apology. The lifelong work you invested in your aims and ideals has ever been a labor of love and no hardship. You have not exerted yourself to earn thanks, and expect none. So when you enjoyed your incessant and fruitful toil we have sympathized and profited. When you, fulfilling the obligations to science, the profession and the world, found inscribed in the innermost of your heart, added to the riches of mankind, we have admired and harvested. Your character and learning, your sound judgment and warm heart, your generosity and consistency have gained thousands of friends. Friends made by such as you are not of the every day's stamp. There is nobody here or outside that came near you that has not been attracted, improved and inspired by you. These are simple statements in the plain every day words of one who, being so much older in years than you, was glad to sit at your feet and will listen to you, no matter whether you are heard in Montreal, Philadelphia, Baltimore or Oxford. As a sort of explanation of your intellectual growth and success, I have heard you speak of your indebtedness to favorable circumstances and to the influence of your descent. Be it so, for as your friend Thomas Brown, without, I believe, thinking of you, said three hundred years ago: "Non mediocris felicitatis est ad virtutem nasci" (Sent. II p. II p. 178 Merryweather)—"it is no mean felicity to be born with the imprint of virtue." So your heirloom has actually become ours, indeed; and we take pride in it almost like yourself. What your father and your good old mother, who are often on your lips, have done to shape you, they have done for us also. Tell her we send her greeting and the expression of our reverence and of our wish she may, as we do now and ever, enjoy her son long after this, her ninety-eighth year, and of our gratitude to her, the British mother of one of the greatest benefactors of the medical profession of America.

Presentation of "Cicero de Senectute."—Dr. S. Weir Mitchell, of Philadelphia, then presented Dr. Osler with a translation of Cicero's immortal essay on old age. Dr. Mitchell said that the gift undoubtedly fulfilled one quality of the true gift, inasmuch as it was something that the givers would like to keep themselves. As to the appropriateness of it there could be no doubt, and indeed applause of the guests showed already that they realized its aptness to the occasion. One reason of this appropriateness is that Cicero must be regarded as an anticipatory plagiarist, since he had said in a famous passage of this essay, "It is very desirable for man to expire at the right time." As Cicero was probably about sixty years of age when he wrote this essay, he did not state as definitely as the newspapers claim the guest of the evening to have stated just what was the right time for a man to expire. As to his own selection as the presenter of the gift, Dr. Mitchell said that he was the youngest man present, and was therefore naturally chosen to make the presentation, to the most venerable member of the American medical profession. It concerned a subject which the ladies never attained, and the translation had been made by James Logan, the friend and adviser of William Penn. The printing of this copy had been done by Benjamin Franklin, and it bears the date 1744. Franklin said very appropriately in the preface that as as it was only old men who would be apt to read an essay on old age, therefore the type selected had been especially large, in order that no straining of the eyes might remind them of how much the departing years were taking away from them. This was a story told by the kindly old pagan philosopher of the declining years, the declining years in the sense perhaps that one is compelled to decline all the good things and yet find many subjects for consolation in the years as they go.

With a fervent "God bless you!" Dr. Mitchell made the presentation, and wished that Dr. Osler should find in the years as they passed only the renewal of the satisfaction that had been his in the friends and the influence for good of other days.

Dr. Tyson, in introducing Dr. Osler for the response to the toast, said that usually occasions like this and eulogies such as Dr. Osler had listened to came to old men, and therefore had their element of sadness, inasmuch as they represented the farewell to the work of a lifetime. It is not the end of a career, however, that is celebrated to-night, but the entrance upon a new sphere of activity, and it is not good-by that is said, but a cordial Auf wiedersehen, for it cannot be said that the medical profession of America shall not have the benefit of Osler's presence and of his genial oratory many times in the years to come.

Osler's Response.—Dr. Osler said that he could not but feel that the happiness which came to him in the midst of all these manifestations of friendship was undeserved. He felt that he had been singularly blessed in the friends that he had made. He would yield to no man who claimed to have more or better friends than he had, and for this he can only say, "God be praised!" If success consists in getting what one wants, and being satisfied with it, then, indeed, success has been his, since friends so precious have come to him. Always, however, there has been the feeling of lack of desert of the privileges that have come. When the invitation to present himself as a candidate to the position of clinical medicine at Philadelphia reached him at Leipzig, Dr. Osler was inclined to think that it must be a joke. He was not sure with regard to it until two weeks later a cablegram reached him to meet Dr. Weir Mitchell in London. Boston measures men by brains, it is said New York by bawbees, and Philadelphia by breeding. It was Mitchell's task to test his breeding. He did so by having him eat cherry pies and noting how he disposed of the stones. As Osler disposed of them discreetly, the breeding question was settled. Friends had spoken during the evening of his influence on Philadelphia. What he felt as one of the most precious things in his life was the influence of Philadelphians on him who have been the colleagues of such great men as Pepper and Leidy and Agnew and Ashurst, was of itself a liberal education

in medicine, a suggestive influence in medical education and in teaching, whose power could not be exaggerated.

At Johns Hopkins there had come the opportunity to do for America what had been so well done in Germany, to make a great teaching clinic. If he has accomplished anything Dr. Osler feels it is by the introduction of Teutonic methods into American medical education. He cannot but feel supremely thankful then for the opportunity for this that was presented at Johns Hopkins.

American Hospital Opportunities.—Dr. Osler said that even on an occasion like this he felt that he must say a word with regard to the hospital opportunities that are being wasted in America. In every town of 50,000 inhabitants in this country, there could be a good medical clinic from which would be issuing regularly distinct contributions to medical progress. For this, however, there must be a change in hospital equipment and methods of appointment. If a few men guided the destinies of hospitals instead of many, and if they were not too often the bone of political contention, then much might be accomplished that now failed. There would have to be properly paid assistants who would remain as resident physicians at the hospital, not for a year or two, but for many years. If this were done, then America would accomplish more for clinical medicine in five years than Germany could do in ten.

Dr. Osler himself has cherished three personal ideas: Do the day's work well, to act up to the Golden Rule and to cultivate equanimity. To do the day's work well may seem too practical to be an ideal, but it is an ideal. To let the future take care of itself, and to do the thing in hand as well as possible represents the only hope for the successful accomplishment of good work. The Golden Rule is an ideal only if it is applied not alone to the professional brethren, but also to patients and to all those with whom one comes in contact. As for equanimity it is the only thing that insures anything like happiness in life. Equanimity that enables a man to take success with humility, to enjoy even his friends with humility, and to suffer sorrow and trial without being cast down.

Dr. Osler feels that he has made mistakes, that they have been of the head and not of the heart. He has loved no darkness, he has sophisticated no truth. He has allowed no fear to paralyze his efforts. He leaves his friends with sorrow and yet with feelings of profoundest joy over their manifestations of kindliness to him and his, and he feels that the bonds, though loosened, are not severed.

SOCIETY PROCEEDINGS.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, held February 8, 1905.

The President, Harlow Brooks, M.D., in the Chair.

Typhoid Abscess of the Thyroid Gland; A Case Resembling Chorionic Epithelioma.—Dr. Richard Weil presented a case of typhoid abscess of the thyroid gland which he considered of interest not only because of its rarity, but also because it illustrated certain biological peculiarities of the typhoid bacillus. The patient had had a fistula on the right side of the neck for four years with constant discharge. He had been treated at various hospitals with injections and scraping without success. Dr. Kämmerer finally decided to make a complete excision. The fistula ran for a considerable distance to the thyroid gland. At the operation one lobe of the thyroid was removed. In this was situated an abscess cavity about the size of a walnut. The walls were calcific, and contained some thin, purulent fluid. From this fluid a pure culture of the typhoid bacillus was recovered. Upon inquiry the patient admitted that the swelling of his thyroid had begun to develop shortly after an attack of typhoid fever four years before. The patient had also when young suffered from goiter, as nearly all such patients have. In the literature Dr. Weil had found ten cases of thyroid abscess after typhoid fever. Of course three were closed and contained typhoid bacilli in pure culture. There was only one case in the literature in which after a long lapse of time an open abscess cavity contained the typhoid bacillus in pure culture. In this case, reported by Parsons in the Johns Hopkins Reports, the bacilli were isolated from the costal abscess after a fistula had been present for three months. Although morphologically and culturally the organisms present in Dr. Weil's case corresponded to the stock cultures they did not respond to the agglutination test. Whereas the stock cultures reacted to typhoid serum in 1-50, this bacillus reacted only feebly at 1-20. The serum of the patient was examined and was found to have an extremely high agglutinating power, but this also failed to agglutinate the bacteria above 1-20. It seemed possible that this bacillus belonged to the "Ebérthiforme" type of Sacquepée. To prove this the bacillus was injected into rabbits in the effort to produce an immune typhoid serum and so confirm the diagnosis. After cultures had been transplanted through eight bouillon tubes, the bacillus gained in agglutinating power up to 1-25. It never equalled the stock cultures but still gave what could be called a specific reaction. The immunization experiments were therefore discontinued as unnecessary.

Dr. Weil also showed a case resembling chorionic epithelioma. This was not a true case of chorionic epithelioma but it had given rise to so much confusion in diagnosis that he thought it well to present it. He said that there was of course no difficulty in recognizing certain cases of chorionic epithelioma; that is, cases in which shortly after abortion or delivery a tumor was found in the uterus. There were, however, a series of cases about which a good deal of discussion had arisen as to diagnosis:—Those in which after a variable period after abortion or delivery, ranging from months to years, these so-called chorionic epithelioma have been found not in the uterus but in distant organs: those in which these tumors had been found in virgins, as in the case of Lubarsch: and, finally, those occurring in men, angioplastic sarcoma or teratoma of the testicle, which have been described as chorionic epitheliomata. There are also cases such as that reported by Marx, in which tumors were found in the liver, which were similar to these hemorrhagic tumors, but occurred in a man who presented no tumors of the testicle. Marx placed such tumors with the endotheliomata. The case presented by Dr. Weil occurred in a woman of twenty-nine years of age. She entered the hospital practically moribund. Her husband declared that she had not recently been pregnant. At autopsy the uterus and adnexa were found to be perfectly normal. In the stomach there was found a tumor about the size of a naval orange situated near the pylorus, but not causing obstruction, yellowish red in color, and slightly ulcerated. In addition to this there were tumors in the liver. The liver was found to be studded with large hemorrhagic masses which were reddish brown in color and varied in size from a pea to an orange. There were fairly sharply circumscribed and looked exactly like the metastases of chorionic epithelioma. The other organs were

entirely free from invasions. Microscopical examination showed that this was a case of primary tumor of the stomach, with metastases in the liver. The muscularis and submuscosa contained small nodules composed of adenomatous strands of cylindrical cells. These lay in a cellular stroma composed of epitheloid cells. The stomach tumor might, without doubt, be classed as an adenocarcinoma, somewhat atypical in the fact that the adenomatous structure had been to a certain extent replaced by a diffuse proliferation of epitheloid cells. These nodules, even in the stomach, showed hemorrhagic areas. There was also invasion of the blood vessels in the wall of the stomach by tumor masses. The tumors in the liver were intensely hemorrhagic, and it was difficult to unravel their histology. As the periphery of the masses of clotted blood which fomed the center of these metastases, one could see collections of large, lightly staining, epitheloid cells resembling closely those observed in the primary tumor. No adenomatous structures could be discovered. Microscopically, therefore, the tumor bore certain resemblances to chorioepithelioma. The presence of syncytium in the tumor was to be excluded, although closely simulated by degenerating cords of liver cells which were to be found amid the tumor masses and in which the cell boundaries were quite wiped out. The only case in the literature to which comparison could be made was that of Marx, in which syncytium (of doubtful authenticity) was also found in the tumors in the liver. His case would also have been diagnosed as chorionic epithelioma had it not occurred in a man in whom there was no teratoma of the testicle. It is, therefore, quite evident that this type of tumor may be closely simulated by other tumors of very different origin, if they are hemorrhagic and contain large epithelial cells. The presence of pseudosyncytium especially in the liver, is frequently an additional source of error. But even true syncytium is not characteristic, as was thought by Marchand, of fetal tissues, but may occur in any carcinoma or endothelioma. On this basis, Sternberg presented a teratoma of the testicle containing syncytium at the last meeting (1904) of the German Pathological Society, but refused to regard it as chorio-epitheliomatous tissue. The actual character of all those tumors hitherto grouped in this class but not occurring in undoubted consequence of a pregnancy must, therefore, be carefully reconsidered; the diagnosis is no longer so simple as was once believed.

Agglutination Characteristics.—Dr. W. H. Park, in the discussion, said that he had been interested in the report of the agglutination characteristics of typhoid bacilli which had been living in the body for so long as four years. The low agglutinability on isolation with later recovery after transplantation reminded one of bacilli grown in fresh unheated serum. At the laboratory of the Health Department, Dr. Collins had diminished the height of the agglutinating reaction of bacilli, ninety-five per cent. by growing them for twelve periods of twenty-four hours each in serum. When grown again on nutrient agar they recovered their agglutination characteristics much more slowly than did Dr, Weil's cultures.

Dr. C. W. Field said, in regard to syncytium in tumors, that he had showed some time before a primary endothelioma of the peritoneum in a man. In that tumor there was a large amount of syncytium and only the peritoneum was involved. No other organs were involved.

Chorionic Epithelioma.—Dr. Harlow Brooks said that he had recently examined material from a woman who declared that she was a virgin, in which the growth was undoubtedly chorionic epithelioma. Some had been inclined to look upon it as one of the growths occurring without impregnation. On examination he had been assured that it was from the remains of placental tissue that the growth originated. Personally, however, he did not believe that one was justified in saying that all these tumors came from either maternal or fetal tissue.

Hemorrhagic Metastatic Tumors.—Dr. Weil said that he did not quite understand why an ordinary carcinoma should in this case give rise to intensely hemorrhagic metastatic tumors. It was easy to understand the formation of such tumors in the endo- and peritheliomata, which were essentially vascular tumors. By way of explanation, he suggested that in this case the metastases travelled by way of the portal system, and not by the lymphatics, from the stomach to the liver. Sections of the stomach revealed tumor invasion of the blood vessels.

An Epidemic Disease of Trout.—Dr. Cyrus W. Field described an epidemic disease of trout occurring in the preserves of the South Side Sportsmen's Club, on Long Island. This broke out in the latter part of October and was first noticed in the early part of November as being very extensive. Dr. Field showed a plan of the preserves. The water passed down from the brook and entering the first preserve bubbled up and became well aerated. On going into the lower preserves it passed through screens and so was not aerated. The disease first broke out in the tanks to one side. No fish in the first preserve and very few of the young fish were affected. Very few fish in the lower brook died of the disease and these had probably been thrown there by the keeper. From the middle of October to November 10, 5,400 fishes died. From that time to the first of December, 2,100 fishes died. In the early part of November the fish were all turned out into the lower brook. The death rate then dropped to 1,600 for December, and 1,000 for January. For the first week in February it was about normal. The gills of the diseased fish were found to be pure white instead of being a healthy red. In the normal gills large quantities of nucleated red blood cells could be found, but there were none in the diseased gill. On autopsy the only pathological condition present was in the liver which was markedly enlarged, very friable, and yellow instead of being brownish red in color. Microscopical examination of the livers of the fishes showed intense fatty degeneration and large areas of necrosis. In the fish the liver is the great hemapoietic organ of the body; the spleen takes very little part, if any. All the other organs were absolutely normal. The ventral artery which in the healthy fish was very large and red, in the diseased fish was simply a gray, slaty line, and when smears were made was found to contain slaty detritus. Dr. Hodenpyl had gone to the club and had had four healthy and four diseased fishes placed in a small tank together. These fish were fed for two weeks on fish dead of the disease. One of the diseased fish died. The four healthy fish, when taken out, were found to be normal. The remaining three fish showed a pink tint to the gills. Two weeks later the diseased fish could not be distinguished from the healthy ones. Dr. Field had had thirty diseased fish put in one preserve and thirty normal fish in the next preserve. Of the diseased thirty, four or five died. After two weeks only three showed white gills, while none of the normal fish had become diseased. An interesting point was that the disease in these preserves spread against the current, not with it. The fish in the lower brook were not affected, and the diseased fish which were turned out

into the brook got well. On Dr. Field's first visit about fifty fish were netted from the brook and among these were only two healthy fish. Two months later fifty more were netted and there was not one diseased fish among them though a few had pale gills. This epidemic occurred at a time when the preserves held three times as many fish as ever before, and when the water supply had been cut down one-half. At the same time a number of fish which had died of ulcers came down from the upper brook. This, however, had nothing to do with the anemia in the preserves. Cultures were taken from the fish and studied at various temperatures. No bacteria were found except from the ulcerated fish, which showed large quantities of a very slender bacillus. A number of rainbow trout, which are a very hardy trout, were in the preserve and none of these were affected. The disease seemed therefore not to be of an infectious nature, but one which was probably due to lack of oxygen in the water. Dr. Field thought this interesting in connection with human anemias.

Mr. Slade, the president of the club, in the discussion, said that when the disease first came to his notice he naturally assumed that it was due to the food, but on investigation he found that the fishes had been regularly fed on pig's liver as they had been for two years. He had thought it possible that some disease of the pigs might have caused the epidemic but the doctors were agreed that the food had nothing to do with it.

Anemia Due to Lack of Oxygen.—Dr. Harlow Brooks said that he had looked over the sections with a great deal of interest and he considered that Dr. Field was right in saying that the only lesions present were such as might occur from extreme anemia. This anemia was interesting as not having been due to filthy conditions, but simply to a lack of oxygen although the amount of food had been plentiful. He had, while fishing, often seen fish in shallow, land-locked pools whose gills were white. Later on these fish were very apt to become infected and covered with whitish parasitic scales. They however first showed the signs of anemia.

New Instrument for the Determination of the Coagulation Time of Blood.—Mr. L. B. Goldhorn demonstrated this instrument, which was devised by Dr. Biffi, of Lima, Peru. The instrument was exceedingly simple and seemed to be very efficient. It consisted of a glass cylinder and a perforated cork containing a thermometer with the reading above the vessel, and, secondly, of a glass rod or tube in which was fused a platinum wire, bent in such fashion as to have a number of loops which were even in diameter. To use the instrument the jar was filled to the black mark with water. The finger was punctured, note being taken of the time. The loops were touched to the surface of the extruding drop, care being taken that simply the periphery of the drop was touched. The reading of the thermometer was taken. The tube was replaced and after five minutes the rod was pushed down and the first loop introduced into the water. If no fibrin formation had taken place the blood dissolved completely and the loop became perfectly clear. After another lapse the second loop was pushed into the water, etc. When fibrin formation started it could be seen immediately that there remained a slightly tinged remnant of coloring matter in the loop. When coagulation was complete the loop showed a solid red mass. The instrument was so simple that any one could make it. The coagulation time depended in the first place upon the temperature of the air and of the water, and on the size of the loop. It would be desirable to have a thermometer which would take a reading of the water so as to obviate temperature changes in the vessel. Dr. Biffi had suggested that the loop be a single twist in the wire. Mr. Goldhorn had found, however, that this was not permanent and not very desirable because by capillarity the blood went to the point where the two wires crossed and this caused a slight difference in the coagulation time. Mr. Goldhorn made his loops more permanent by giving an extra twist so as to have the loop unalterably fixed on a little stalk. To clean the instrument is was only necessary to take out the platinum wire, hold it in a flame, and, if necessary, cleanse it with acid. The size of the loop had considerable to do with the coagulation time. The smaller the loop the more rapid the reading obtained, but there was also a greater error because it was much more difficult to get a uniform amount of blood in a series of small loops than in a series of large ones. The instrument should be a very useful one and should be put on the market. Mr. Goldhorn said that the instrument had already shown him many things. He had recently seen a case which had been pronounced undoubted hemophilia. The coagulation time would be supposed to be very much diminished but as a matter of fact by this instrument the time was very much increased. It had also shown him that there was no relationship between the coagulability or fibrin formation and the blood plates.

Dr. J. H. Borden, in the discussion, asked Mr. Goldhorn whether he had tried to find the limits of coagulation time by this instrument and whether he had made any tests to determine how it corresponded with other methods.

Mr. Goldhorn said that Dr. Biffi had found that the instrument as made by him corresponded in time with other methods. It all depended upon the temperature and the size of the loop. Dr. Biffi had suggested that the loops be 3 to 4 mm. in diameter and 1 cm. apart, and he then found that at a temperature of from 20° to 25° C., coagulation was complete in from seven to ten minutes in a normal subject. With the instrument as shown it took about twice as much time, but this was necessarily more accurate on account of the larger size of the loops.

Work Done with the Colon Bacillus.—Dr. W. H. Park gave a short report of work done under his general direction by Mrs. G. Van Everen Stoughton, with the colon bacillus. The work was undertaken to see to what degree members of the colon group taken from a great number of cases, normal and diseased, were alike in their agglutination characteristics and their fermentation of sugars. Mrs. Stoughton had tested fourteen cultures from different persons by injecting them into rabbits. Some animals received three organisms, some seven, and others only one. It was found that organisms derived from different cases but apparently the same, reacted very differently with the same serum. With the sera obtained tests were made of various cultures. Only a few cultures of those which had not been injected into the special animal whose serum was being tested agglutinated even slightly. This did not harmonize with the belief that most cultures of *Bacillus coli* react to some of the different specific agglutinins for the colon bacillus. For instance, Rabbit I was injected with cultures of cases 1, 7 and 12. The other eleven of the fourteen cultures did not react even 1-20 with this serum. Rabbit II was injected with 3, 4 and 10. Culture 3 reacted 1-200; 4 and 10, 1-500. Strains 1 and 2 gave a fair reaction at 1-20. The other nine gave no recation in 1-20. Rabbit III was injected with 2, 8 and 13. Culture 2 reacted 1-300; 8, 1-500; and 13, 1-200. Strains 1 and 7 gave a fair

reaction in 1-20. The other strains gave no reaction or only a slight one. Thus with fourteen organisms, propably rather more distinct than usual, not one gave rise to any appreciable specific agglutinins for the others. Large numbers of colon bacilli—44 from different cases and 50 consecutive colonies from one plate—were taken and tested on different sugars. With the ordinary tests with dextrose, indol, etc., these all reacted alike except for the amount of gas produced. When saccharose was tried it was found that one-third did not ferment saccharose with the formation of gas. Of those that did, a portion caused no increase of acid in the sugar broth. In the bacilli from different cases there was a very marked difference in the amount of gas, from 15 to 90 per cent. being produced in the fermentation tubes. The whole work went to show the enormous number of varieties of bacilli which are included in the colon group.

Dr. E. Libman, in the discussion, said that he had been interested for some time in the question of agglutination of the members of the colon group. He had found a great deal of difficulty in establishing definite relationships in the colon group. Often groups which culturally were identical would not agglutinate at all similarly. He thought that in future experiments with members of the colon group derived from the intestinal tract, it would be wise to test the agglutination after they had been withdrawn from an animal upon which they had exerted some pathological effect. While the bacillus might then be agglutinated to a certain extent, that reaction might be entirely lost in a few days. He had seen an example of this when working with a paratyphoid bacillus. The organism had first been isolated from the gall-bladder and the serum gave a thread reaction with this bacillus. It was next isolated from the blood and the serum then gave a thread reaction with the organism from the blood but only an agglutination with the organism from the gall-bladder. Two days before death it was again isolated from the blood, and the serum then gave a thread reaction with this last, an agglutination with the first organism isolated from the blood, and no reaction at all with the organism from the gall-bladder. He thought therefore that it would be advisable to test the organisms directly after they had been passed through an animal.

Dr. Park said that Dr. Libman's remarks and the results which all get in their work with these organisms showed how much these bacteria vary from time to time. Most of the agglutination tests in laboratories had been done with stock cultures growing on artificial media. He thought it was easy to realize that a bacillus passing from the gall-bladder to the blood might change rapidly in its specific properties as it developed. Bacilli taken on successive days might present entirely different characteristics. The bacilli as they increased in the body fluids would vary greatly in their offsprings, since those least susceptible to the bactericidal substances of the blood would be the ones which developed.

Further Research in Cultures and Subcultures.—Dr. Leo Buerger demonstrated a few plates showing the growth of the *Streptococcus mucosus capsulatus* and certain pneumococci, in symbiosis. Some days before some places which had been made from the mouth secretion of a normal case were found to be studded by numerous colonies of the *Streptococcus mucosus*. These colonies varied in size from two to three mm. in diameter. Subcultures were made, the organism identified, and the plates were allowed to stand at room temperature. Three days later it was noted that other colonies had appeared. These were very large, five and even six mm. in diameter, of a mucoid appearance, resembling to some extent the colonies of very luxuriously growing Friedländer bacilli. Some of them were discrete, while others had increased so rapidly in size that they formed large confluent masses of slimy surface growth. The discrepancy in size between these colonies and those ordinarily found in the case of the *Streptococcus mucosus* seemed to indicate different organisms. Subcultures, however, showed conclusively that the organisms were identical. Re-examination of the plates showed that whereas the old colonies presented no dense center, all the large colonies presented a more opaque, whitish center. Portions of these denser and more opaque centers were studied and were found to be composed of Gram negative bacilli. Experiments which were made showed conclusively that the presence of these bacilli was instrumental in causing the luxuriant growth described. The bacillus was rather large, non-motile, Gram negative, and tended to assume the diplo-bacilloid form. In recent cultures the double forms prevailed and the elements were comparatively short. In other growths, more of the longer single forms were to be seen and the tendency to involution was very great. It grew poorly on acid media unless they contained glucose (other sugars had not been tried) or serum or broth. The neutral titer seemed to be most favorable for development. The best growths were obtained on glucose serum agar or glucose serum broth. Fairly large doses had not proved pathogenic for either mice or guinea-pigs. The organisms had been identified. Plates of glucose serum agar were streaked with the *Streptococcus mucosus* isolated from the above mentioned case, and another similar organism derived from another source. After twenty-four hours incubation small quantities of cultures of the bacillus were admixed, care being taken to avoid spreading the colonies over sterile portions of the plate. In twenty-four hours the streptococcus growth had almost doubled its size on the plate, whereas the growth of the bacillus occupied but a very small portion of the total mass. The increase in size of the former took place fairly rapidly even at room temperature whereas under ordinary conditions its growth without incubation is poor. The consistency of the colonies also became altered; they were more mucoid and stringy so that it was difficult to remove portions for examination. When the streptococcus was planted on a colony of the bacillus the effect was not so marked. Two strains of the pneumococcus were also experimented with. When grown in symbiosis with the bacillus they also produced large mucoid colonies of considerable dimensions. The viscosity of the surface growth was greatly increased. The case from which these organisms were isolated was kept under observation for two weeks, during which time three strains of the bacillus and four of the *Streptococcus mucosus* were isolated on four different days. Perhaps the persistence of the streptococcus in the throat of this normal individual was influenced to some extent by the presence of the bacillus.

A Complex Case of Multiple Cysts of the Liver.—Dr. Harlow Brooks demonstrated a complex case of cysts of the liver, showing it in connection with the previous cases shown by Drs. Moschcowitz and Weil. This case admitted of almost any explanation of the nature of the cysts. The history of the case was unimportant except that the man was a degenerate, mentally, morally and physically. He was also probably syphilitic. The chief anatomical findings were: Hyperplastic pneumonia with gangrenous ulcerated and papillomatous enteritis, with double inguinal hernia and beginning intestinal cancer; interstitial nephritis with cysts of the

kidney; necrosis of the testicles and acute cystitis; chronic meningitis with a very primitive development of the brain cortex; and multiple cysts of the liver. The brain was very interesting; in its cortical development it had not risen even as high as the type of the chimpanzee or orang. Mentally the man was at about this level. There was no clinical history nor sign of hepatic disease. When the liver was removed the duct of the gall-bladder was found freely open. It contained about the ordinary amount of bile. The entire substance of the liver was mottled with small greenish-walled cysts, but they contained perfectly clear mucoid fluid, not bile stained. The cysts varied in size from 1 mm. to 1 or 2 cm. They were as a rule in the interlobular spaces, but some were in the centers of the lobules. This might be explained by the fact that some showed well-marked diverticula. Dr. Brooks thought this might be considered as a congenital cystic condition. This was borne out by the fact that the man was a congenital degenerate in many ways. Dr. Prudden had called attention to the fact that if one congenital lesion were present others would also usually be found. On the other hand, it might be looked upon as an adenocarcinomatous growth. The case presented a great many points which admitted of discussion.

The Question of Adenoma.—Dr. R. Weil, in the discussion, said that the question of adenoma, which always came up in such cases, was very puzzling. It seemed to him that there were a great many things against such a theory. It was rather curious that this condition almost invariably occurred in association with other congenital lesions. The fact that practically the entire liver was uniformly permeated by the change was another argument against adenoma. There was, further, no active proliferation of the so-called tumor tissue. Dr. Weil considered it to be an anomalous congenital condition of the epithelium throughout the entire organ. In the bile ducts there was a condition resembling adenoma, but when one considered the entire organ and the fact that this occurred with other congenital lesions, Dr. Weil did not see what ground there was for the theory of adenoma. There was the additional factor of adenomatous tumors at the bases of the ulcers, but one would hardly be inclined to regard these small isolated cysts as metastases. Their formation owing to occlusion of the bile ducts hardly entered into this particular case because there was no cirrhosis.

Dr. E. Moschcowitz thought that the assumption of a congenital origin did not entirely explain the microscopical lesions. He thought that in addition another factor played an important part in the pathogenesis.

Dr. Brooks said that he wished to confirm Dr. Weil's statement that there was no cirrhosis present, so that one could strike out inflammatory growths of the bile ducts.

BOOK REVIEWS.

A Practical Treatise on Diseases of the Skin. For the use of students and practitioners. By James Nevins Hyde, A.M., M.D., and Frank Hugh Montgomery, M.D. Seventh Revised Edition. Lea Brothers & Company, New York and Philadelphia.

We do not know that we can add anything to the full meed of praise already accorded this volume in our reviews of former editions.

It is by all odds to our view the most practically valuable text-book on its speciality with which we are acquainted, and in its new dress is all the more valuable, since much new matter of recent developments is included. From the illustrative standpoint the beauty of the book has been vastly enhanced by a thorough going over of the old plates and a substitution of newer and better ones.

The new chapters on the X-rays in the treatment of the affections of the skin are timely and withal safe and conservative estimates of the value of this as yet comparatively new therapeutic aid. No dermatologist can afford to overlook this new edition and the general practitioner cannot fail to be much profited in his work with affections of the skin by such a trustworthy guide.

The Art of Cross-Examination. By Francis L. Wellman, Esq. The Macmillan Company, New York and London.

Mr. Wellman has included in this volume a new and enlarged edition of his popular work of 1903, some very lucid and telling discussions of what might be termed the technic of cross-examination, together with a most diverting collection of incidents illustrating his points of several extensive examples of famous cross-examinations from notable trials. Anyone can find entertainment in its pages, and anyone called upon to figure either as the cross-examiner or as the cross-examined may glean instruction as well. Physicians especially who are so frequently called upon to testify in damage cases might read this work with profit, if only to avoid some of the pitfalls dug for the unwary. It must be admitted, however, that in the instances cited the medical men in question seem to have deserved the discomfiture which they were obliged to undergo.

Progressive Medicine. Volume IV., December, 1904. Volume I, March, 1905. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Lea Brothers & Company, New York and Philadelphia.

Some sort of periodical digest of the advances, discoveries and improvements in the medical and surgical sciences is an essential addition to the library of every practitioner who would keep in touch with the onward march of his profession, and these two latest volumes of the Progressive Medicine Series, published by Lea Brothers, continue to uphold its reputation as the best of the quarterlies to serve this end. The December volume includes diseases of the digestive tract, genito-urinary diseases, surgery of the extremities, diseases of the kidneys and an extensive chapter on therapeutics, by Dr. Landis. The March issue is devoted to surgery of head, neck and chest; infectious diseases, including acute rheumatism, croupous pneumonia and influenza; diseases of children; laryngology and rhinology; otology.

BOOKS RECEIVED.

Medical Philology. By Dr. L. M. Griffiths. Part I, A to AE. 12mo, 100 pages. J. W. Arrowsmith, Bristol.

Surgery of the Diseases of the Appendix Vermiform and their Complications. By Drs. W. H. Battle and E. M. Corner. 8vo, 208 pages. Illustrated. W. T. Keener & Co., Chicago.

Atlas and Epitome of General Pathologic Histology. By Drs. H. Durck and Hektoen. 12mo, 371 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

Essentials of Materia Medica and Therapeutics. By Dr. H. Morris. Edited by Dr. W. A. Bastedo. Sixth Edition. 12mo, 204 pages. W. B. Saunders & Co., New York, Philadelphia and London.

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ORIGINAL ARTICLES.

PHYSIOLOGY THE BASIS OF CLINICAL MEDICINE. SUGGESTIONS AS TO COURSES IN APPLIED PHYSIOLOGY.

BY J. MADISON TAYLOR, A.B., M.D.,
OF PHILADELPHIA.

THE experience of a quarter century in the practice of medicine, and particularly in the study of those subjects which commend themselves as of chief importance in accomplishing clinical results, has evolved in the writer the belief that certain changes could be advantageously made in the teaching of undergraduates.

A right comprehension and use of physiology is admitted by all to be not only of primary but of constant importance. The endeavor to revise and reform his own knowledge of the elemental principles of growth, development, functional activity and metabolism preparatory to understanding the phenomena of those departures from the normal which it is the prerogative of the physician to understand and control, has stimulated the writer to read extensively in works on modern physiology.

In common with many he has tried faithfully to keep before him the fundamental laws of life and growth, and use them in his daily work. The overwhelming tide of advancing medicine, however, demands such constant attention that to survey even the surface of knowledge is difficult; but to think deliberately and accurately requires oft-repeated careful revisions of fundamentals. Good counsel has directed his eye to note that a practical familiarity with physiologic laws is the basis of a clear understanding of medical problems. With this in view he has inquired among his most trusted colleagues and finds, to his amazement, how little they know or remember of physiology. They may be familiar with the most recent and acceptable views on pathologic anatomy or procedures, or current opinions on clinical phenomena, but few seem able to reason from fundamentals to legitimate conclusions. Each one appears ready to accept and trust the findings of others, wherever the science rings true, but few are critical of the physiologic reasoning employed.

Further research reveals the fact that among physiologists there is far too little accord on points vital to the clinician; insufficient attention being paid to many of the most practical problems. Physiology is becoming unwarrantably scholastic. The reason for this is the wide separation between the work of the physiologist and that of the clinician, which is a distinguishing feature of the period. No one deplores this more frankly than the clinician and measures are demanded to mend matters in, for example, establishing courses of applied physiology in medical schools or their equivalent, special demonstrations of the physiology of organs or systems whose derangements are being taught in the regular courses on theory and practice of medicine.

Meanwhile few will deny the statement that if clinicians could be periodically supplied with a review of the principles of physiology, along with the principles of general pathology, they would first be surprised at their own previous ignorance, and secondly, would straightway become engines of immensely greater efficiency to combat disease. Life is too short, and the average human mind too limited to keep abreast of the advances in scientific thought unless supplied occasionally with a summary of tenable conclusions by master minds.

It is the conviction of the writer that there should be special teaching in applied physiology in addition to the systematic course. Unless the student is specifically instructed in applying the principles of life, growth, and functionation to the elucidation of the natural history and phenomena of change and disease, it is impossible for him to grasp the principles of general pathology or to form sound concepts or therapeutic measures.

The average human minds, even the best of them, require demonstrations of the relationship of laws to facts. Therefore it would seem that teachers of physiology might with advantage become members of the regular medical staff and thus possess opportunities for actual practice in hospital wards.

Few men of middle age, engaged in the great struggle of succoring life from devitalizing influences so swift and menacing on all sides, would fail to admit the urgent need of a clearer understanding of the institutes of medicine. This efficiency is not to be obtained from reading current literature on the advances in physiology, for by this we get only isolated facts or theories and at great labor, out of all proportion to the time and strength at our command. We must all rely on our early medical school teaching for the basis of our working knowledge and the rest is at best but a patchwork product. Perhaps most middle-aged practitioners will agree with our personal convictions that many subjects, or at least many presentations of the subjects taught and now being taught us, are practically useless. To specify which ones are effete would invite too wide a discussion. There can scarcely be dissent from the proposition that a man who has acquired a full, well rounded knowledge of physiology, if this be amplified by practical applications to general pathology, is thereby better equipped for re-

search, or to practice, diagnose, prognosticate or treat disease.

How many men emerge from our schools of whom this qualification can be claimed? Sixteen years as professor in the Polyclinic College for Graduates revealed to this observer amazingly few. Through working some years with Professor Reichert in the physiological laboratory of the University of Pennsylvania, he achieved at least a taste for this study, perhaps only enough to realize the unparalleled beauty and importance of the subject. To practice for a livelihood almost forbids laboratory research.

Is the teaching in our medical schools such that all who graduate have secured opportunities to learn the most important principles by which clear reasoning can be consistently achieved? If not, and no one can claim that perfection is attainable, wherein is the chief deficiency?

The proposition is respectfully submitted that the defect lies chiefly somewhere in the present methods of teaching physiology. Something must be amiss: not perhaps in the amount or quality of the science taught, but in the character, choice or form of the facts presented. There certainly is a conspicuous absence of wisely developed methods of demonstrating and teaching the application of physiologic facts to the processes of disease.

It is agreed among teachers that the whole subject should be presented during the undergraduate years. It would seem better if an outline knowledge, an intelligent grasp of the subject were demanded at the entrance examinations, and, then the departmental professor should elaborate chiefly those aspects of the subject which have points of closest contact with clinical medicine.

Again, no matter how fully a student may have absorbed book physiology, in due rotation of subjects as customarily presented, he will be the better for a recasting and grouping of broad principles to enable him to recognize the applicability of the science when sketched out upon different clinical backgrounds. It does seem to the writer desirable that few or no theories, conjectures, hypotheses should be presented to the undergraduate. Undoubtedly many statements must be made subjunctively; many opinions are still *sub judice*. Dogmatism may readily become crystallized into misstatements, as would seem to have occurred in some worthy compends and later text-books. Caution in statement is desirable, especially on debatable grounds and where it is an essential part of some larger aggregation of facts.

A scientific use of the imagination, as Huxley has taught us, is an essential bridge to discovery, to progress, which, coupled with enthusiasm, is characteristic of the pioneer. Independence of thought should be encouraged in all branches. There is, however, an ample store of well-tried facts which may be safely accepted; of principles of action wherewith to reason. These are the materials of which the didactic teaching in physiology should chiefly consist. Beyond these are manifold analogies, pictures, resemblances, needful to round out our conceptions, as Coleridge says, "the shaping spirit of imagination." Then comes the laboratory work, demonstrations, etc.; these if performed on the animal are essential as exemplars, but, as Dr. Chapman says, not comparable in value to human physiology for use among humans. There is a large field for demonstrations and experiments on the student harmless, yet illuminating.

The author is emboldened to make these statements first by frank conversations with Prof. Edward T. Reichert, Prof. Henry C. Chapman, and Prof. A. P. Brubaker, whom he has had the privilege of knowing for over twenty-five years, and secondly, by correspondence with a number of teachers of physiology in our leading medical schools.

The suggestion offered is that to supplement the course in pure physiology there should be demonstrations in applied physiology. These would naturally follow, or parallel, the subjects treated by the professors of pathology and practice, and this could best be done by men who are of recognized clinical abilities and experience and especially trained in the clinical applications of physiology. This teaching could even advantageously supplant some part of the courses now given.

In therapeutics and pathology as ordinarily taught a demonstrator, equipped as described, could be profitably added to make clear much that is now obscure and therefore unfit, being faultily stated, to carry conviction to student minds.

When we reflect that some of the profesors of physiology are biologists, not medical graduates; that some, perhaps most, of those who are, or were, clinicians have long abandoned interest in clinical medicine, that the scholastic aims of some are too much toward the heights of pure science, that, moreover, the subject of pure physiology is so large and elaborate that it is practically impossible for any one man to keep himself thoroughly abreast of the progress in medicine, it is plain that if our students are to acquire a competent knowledge of this vital subject, they must do so by some such means as I have here suggested.

Appended are letters, or quotations from letters, pertinent to the subject under discussion. These are offered without special comment; they speak for themselves:

Edward T. Reichert, University of Pennsylvania.—The subject of physiology has become so voluminous, is growing so rapidly in extent and importance, that the day cannot be far distant when it must be recognized as preeminently the most important of the fundamental branches in medicine. The idea of teaching the medical student so important a subject, and failing to have this teaching thoroughly applied at the bedside, strikes thoughtful ones with amazement, yet this is the condition existing at the present time—has always existed. It is true that the physiologist can, and, as in our present elaborate course in the University of Pennsylvania, does make ap-

plications here and there that will be understood by the student, but it is manifestly futile to attempt in any broad and satisfactory way to apply physiological facts, principles and theories to clinical conditions about which the student is not expected to know anything until a year or two after he has passed fundamentals. That physiology is not applied to any extent to clinical conditions is no fault of the physiologist, nor can the defect be remedied by any change in the present methods of teaching physiology as a fundamental subject. Physiology was never taught so broadly and so efficiently as at present. The eliminations of demonstration from the lecture course has made it possible to devote more time to didactic teaching, a great advantage on the whole, while the division of classes into sections for demonstrative instruction has greatly increased the value of practical teaching. Moreover, the many hours now allotted to practical exercises by the student have proven most valuable in fixing important facts and broadening their application, in developing acuteness of observation; in training in the use of instruments of precision, etc. The total number of hours assigned to each student in physiology at present is from three to four-fold greater than a decade ago.

In order to teach applied physiology, are we to make a clinician of the physiologist and extend his sphere so as to give instruction at the bedside, or is the clinical teacher to utilize and amplify his physiological knowledge? The former is absolutely impracticable, for even were the physiologist given hospital facilities and a larger number of hours he could not possibly use them to advantage excepting at a serious sacrifice of his other work; and, moreover, such a plan would necessarily be doomed to failure from the start if for no other reason because of the student's entire lack of preparation for such advanced teaching.

There are needed, first, physiologic clinicians who shall give during the third and fourth years special courses, didactic and practical, in applied physiology; and, second, clinicians in general who will, whenever possible, apply physiology in the interpretation of their cases. The importance of such instruction being given by the clinician is accentuated by the fact that some of the professors of physiology, and many of the assistants in physiology in our medical schools, are not graduates of medicine, and that the recruits to the ranks of the physiologist are now almost exclusively from biological schools. This means, of course, unless conditions change, that even such limited applications of physiology to clinical conditions as are now made by the physiologist will doubtless be entirely omitted in many of our medical schools. I am convinced from personal experience and observation that the best interests of medical schools would be subserved if a rule were established requiring graduation in medicine as one of the qualifications for a teachership in physiology.

To teach physiology and not to have this knowledge applied by clinical instructors is about as useless as to sow seeds in the desert. It is my belief that the coming men in clinical medicine will be physiologic clinicians.

A. P. BRUBAKER, Jefferson Medical School.—If by applied physiology is meant the collation and presentation of those pathologic processes or conditions which increase, disarrange, or abolish the normal actions which are termed pathologic, and in addition an explanation of the manner of their production, then in my opinion, applied physiology should be taught to the medical student. It also seems desirable that there should be included under this heading an account of the seat and mode of action of the more important and generally used drugs, *e.g.*, strychnine, atropine, digitalin, etc., which modify favorably or unfavorably the action of physiologic mechanisms. If physiology is not to be utilized as a means of interpreting the abnormal phenomena observed by the clinician as well as the physiologic and toxic action of drugs observed by the therapeutist then it does not appear to have that fundamental value to the medical man which is usually assigned it. As to who is the better qualified to make this application and to point out the close relationship of physiology to pathology and therapeutics, this must be determined in individual instances by the character of the training which the teachers of physiology and clinical medicine have received.

In the medical school, where the object of the curriculum is the education of men for the successful practice of medicine, it might appear at first glance that this application should be made by the physiologist, and in a general way no doubt this is the case. The extent to which it is done, however, will depend on the inclination, the training, and knowledge of the individual teachers. But to do so adequately and effectively, and in a manner acceptable and satisfactory to the clinicians of each specialty, it would be necessary for him to have had not only a regular medical education but also a considerable practical acquaintance with the phenomena of disease, the attainment of which would necessitate long residence in hospital wards.

Assuming, however, that a physiologic teacher possessing these qualifications be found, would it be desirable to have him present in connection with an outline of the action of physiologic mechanisms, the various causes and their mode of action which impair them up to the time when they become pathologic, to students who have not yet received any instruction as to the causes or nature of diseases. In my opinion the time and energy which would be expended in this direction by the physiologist might be more profitably expended in other directions. Nevertheless, I believe that a medical education would be of much benefit to the physiologist if for no other reason than affording him the point of view of the medical man.

It seems to me that the chief duty of the physiologist in the medical school is to impart to the student information regarding the functions of the human body, and to help the student by means of demonstrations and practical work in the laboratory to transform that information into actual knowledge, and thus prepare him for the coming work of the clinician. That this is the actual condition of physiologic teaching is shown by the establishment of expensively equipped laboratories and the number of hours devoted by the student to practical work. It is hardly necessary to add that in the selection of demonstrations and laboratory experiments preference should be given to those which directly elucidate the function of the human body.

For these and other reasons it is my opinion that applied physiology should be taught in the third and fourth years of the medical course and by the clinicians themselves. This would necessitate of course an acquaintance with physiologic methods and a familiarity with the existing state of knowledge regarding the functions of the organs embraced in any given specialty. The clinician would then be in a position before entering on a discussion of any pathologic condition to recall the physiologic actions of the structures involved and to utilize them in the interpretation of phenomena under consideration. That this is the rational procedure is evident from the natural development of medical studies and their relation one to another in the curriculum. Therefore, clinicians trained in physiology are more to be desired than physiologists trained in pathology or clinical medicine, in the education of the medical student.

W. H. Howell, Johns Hopkins.—It seems to me that the value of such courses (applied physiology) is almost self-evident. We have been convinced of their usefulness for some years, and have given our third-year students a course which was first designated as "medical and surgical anatomy," but for some time has been called by the more appropriate name of "applied anatomy and physiology."

The course consists first of talks and quizzes by one of the associates in medicine, followed by a similar series by an associate professor in surgery.

I am under the impression that in this country our clinicians are, as a rule, much better informed on anatomical and pathological studies; that physiology has become to some extent neglected.

If an effort is to be made to introduce courses in applied physiology in all the clinical branches, the first desideratum, it seems to me, is that the subject should be taught by a man who is a clinician in the first instance and acquainted with the practical sides; and second, one who has something more than a practical knowledge of physiology.

I sincerely hope that our country will soon produce some physiological clinicians as well prepared on that subject as some are in pathology.

Henry P. Bowditch, Harvard Medical School.—I agree with you entirely as to the importance of clinical practitioners being better acquainted than they usually are with the principles of physiology. I have always felt that Brown-Séquard was absolutely right when he adopted for the title of the journal which he started, *Archives de Physiologie Normale et Pathologique,* for it is impossible to draw a hard and fast line between physiological phenomena occurring in health and those observed in disease.

If you limit the application of the term "applied physiology" to the phenomena occurring in disease it certainly seems that instruction in these subjects should be in the hands of clinical professors and the proper course for a university would be to require that any person holding such a position should have been trained in a physiological laboratory. If you adopt the broader definition so as to include under the term "applied physiology" the phenomena of health, I think, as I wrote you before, that the department of hygiene should, and in this school does, give the required instruction in connection with the courses on air, water, immunity, etc.

W. C. Porter, Harvard Medical School.—As stated in my former letter it seems desirable to me that the treatment of each subject in physiology should include its comparative and its pathological sides. Thus phagocytosis and immunity find a place in the physiological course; the utilization of enemata, hydremia, physiological albuminuria and edema are treated with absorption; hemorrhage, the regeneration of blood, and hemolysis are discussed with other work upon the blood; arterial sclerosis and embolism, with work upon the circulation. The course in physiology arranged upon this plan should therefore give excellent introduction to practical medicine. In my judgment the teaching of practical medicine should be based upon physiological and pathological data. These data may be supplied by clinicians who are well grounded in the elements of their respective subjects, or the data may be given under the direction of the clinical staff by teachers taken temporarily from physiological department. It seems important that there should be no further division of responsibility. The physiologist should have some acquaintance with clinical medicine, because pathological phenomena are essential to a complete view of his subject, and it is obvious that clinical men should not forego reference to the essentials of their work.

Henry Sewall, University of Denver.—I think I understand what you mean by "applied physiology." The thing that I mean by the term has long been a hobby of mine, and I confess to having ventured not many years ago to lay out a plan for a monograph on the subject.

In my clinical and other lectures I have no opportunity to attempt to trace the successive steps from normal to morbid physiology, and to show the adaptations by which compensations, as in heart lesions, make up for anatomical defects.

The science of physiology is in every case of disease whether it is recognized or not. What is disease for us is physiology for the infecting germ. The result of the union of body cell and microbe comes from their incompatibility of temper, so to speak. It seems to me that if one knew enough of physiology and the reaction of cells to varied environment, the whole of pathology and morbid anatomy might be built up or written down deductively.

GRAHAM LUSK.—I have my father's statement that the immediate success of his book, "The Science and Art of Midwifery," was due to the fact that he had been a teacher of physiology, and for the first time in an English text-book he brought in outlying knowledge previously ignored.

It is said that the student of medicine forgets his physiology at the bedside. I attribute this to the fact that the instructor in medicine, as a rule, has little knowledge of physiology. The cure of the trouble lies in the selection, as teachers of medicine, of those who are naturally studious, and obliging them to spend half their day in college and hospital work with the student body. Such a career means fame for teacher, hospital and college, and true development of power in the student. It should attract the best minds. You see in Frederick Müller and Krehl the type of what is best in medicine to-day. Such types are present with us also, but their practical encouragement is virtually *nil*.

G. N. STEWART, University of Chicago.—I agree with you that it would be advantageous that the application of physiology to practical medicine and surgery should be more emphasized than is often the case in the average medical school.

Whether this should be done by a physiologist well versed in clinical work or by a clinician well versed in physiology is a question which local circumstances would often decide.

Any systematic course on this subject should be given at so late a period in the scheme of study that the student will not only have completed his physiology, but will have advanced a considerable way in the clinical work.

In my teaching I have always sought, so far as is possible in dealing with students who have little or no clinical knowledge, to point out the clinical relations of physiological facts. For example, it has been my practice to give at the end of the course on the central nervous system a lecture on applied physiology, discussing in a general way the physiological data to which appeal is constantly made in the diagnosis and prognosis of nervous diseases. Doubtless many physiologists do teach a great deal of applied physiology, and, of course, clinicians who understand their business of teaching do the same thing. Still I do not doubt that there is ample room for more systematic instruction in this important subject.

WARREN P. LOMBARD, Ann Arbor, Mich.—I agree with you that human physiology ought to be taught to all medical students. In our laboratory course the students make additions to their usual experiments on frogs and rabbits, with experiments of themselves.

Effect of making and breaking induction currents and the tetanizing current; effect of making and breaking the direct current; effect of anode to lessen irritability, etc.; the myogram; effect of fatigue by voluntary contractions; rate of condition in nerves; the knee-jerk and its reinforcements.

Reaction time from sound—The radial and carotid pulse — sphygmograms, under varying conditions; the postponement of the pulse.

Length of systole versus radial and carotid pulse; blood pressure under varying conditions—sphygmomanometers; changes in the size of the finger, with pulse, respiration, and reflex excitation—plethysmograph; rate and form or respiration under varying conditions and relation to the pulse-pneumograph. Rate and form of respiration under varying conditons, and relation to the pulse pneumograph.

After relating some further methods in use, Dr. Lombard says, "I think much more could be done in this direction than we are doing at present. The principal difficulty is that we lack methods for studying various forms of functional activities."

MURRAY GALT MOTTER, Georgetown University, D. C.—I feel that never before has there been so much need in our medical schools of physiology as applied to medicine.

I greatly deplore the tendency to minimize the importance of physiology as an intensely practical branch of medicine. This tendency is seen in the provision of some of the State examining boards, whereby undergraduate students at the end of the second year are permitted to qualify in anatomy, chemistry and physiology.

The inference is they may well forget these branches by the end of the fourth year; and, as they have been taught in the past, it might be as well.

There is still another phase of this question, which demands attention on the part of the faculty curriculum committee; namely, the proper coordination of physiology with the other so-called fundamental branches. It seems to me absurd to attempt to teach physiology to students not thoroughly grounded in general anatomy, general chemistry and physics. Still more absurd is it, as it seems to me, to call that a graded course in which the same lectures are delivered to first and second, or second and third year students together.

Yes, I am heartily in favor of a department of applied physiology; I would put it in the fifth year, which Cornell is planning, and I would place it in charge of a man who has had sufficient experience in general practice to know, and not merely theorize on, the applications of physiology; more than this, I would give him a place on the general staff of the college hospital,

and require him to demonstrate both normal and abnormal physiology at the bedside.

Colin C. Stewart, Dartmouth Medical College.—The failure of the average clinician to think in terms of physiology is, I believe, due to his general ignorance of the subject; and his ignorance is in nearly every case due to his neglect of his opportunity to learn it.

The average medical student looks upon physiology as a preparatory subject only. Though the subject is an enormously large one, and though the instructor must be familiar with the whole field before he can ever hope to be a successful teacher, it is by no means true that the whole subject should be taught to medical students. There is ample time in the course to point out the bearings of the stated facts, and to refer to related pathologic processes. Many instructors do this, but they are handicapped by the fact that their students have as yet had no clinical experience.

The difficulty could be entirely overcome by taking the clinical work in the second year of the four. It would be of advantage to continue this course to include mammalian work done by students themselves, only possible with small classes, not more than four each. With small classes this work has been done for several years at various schools, namely Hopkins, Columbia, Western Reserve, etc., with excellent results.

Another serious fault in the teaching of physiology in most schools is that, in developing laboratory work, there has grown up the habit of omitting demonstrations from the lectures. There is some excuse for this with large classes because of the difficulty of showing a small object to a large number at once. Demonstrations given separately can never take the place of lecture demonstration. I know of no more valuable courses of lectures than those given by Prof. Howell at Johns Hopkins, by Prof. Bowditch at Harvard, and by Prof. Curtis at Columbia; these are illustrated throughout.

Frederic S. Lee, Columbia University.—The lack of adequate application of physiologic principles in the clinical instruction of the medical student has been long an obvious and lamentable fact. It appears to me very important that every department of medical instruction should be, in a considerable degree, a department of applied physiology. To do this the clinician must be familiar with physiologic facts and principles. The student of the physiologic sciences of the present will be the clinical teacher of the next decade, and he will carry with him the ability to think in terms of physiology.

James J. Putnam, Professor of Neurology, Harvard Medical College.—"It is evident that the physiologic principle is in the air." He goes on to say that it is essential in the right understanding of neurology to go much deeper and depend more fully upon physiologic explanation than is done. This was the subject of his address before the International Congress of Arts at St. Louis.

Isaac Ott, Easton, Pa.—The teaching of physiology to medical students without its application to the practice of medicine is a barren procedure. In my text-book I have made this an important feature. There is no doubt that lectures upon the subject of physiology would be a great gain. Dr. L. Krehl in his "Pathologische Physiologie" has partly filled this need.

Henry Beates, Jr., President of the State Board of Medical Examiners (Pa.).—I wish it were possible to insist that the professor of physiology in every faculty should be identified with hospital work. We would thus build up a physiology with which the undergraduate body should be made thoroughly familiar, based upon the interpretation of clinical phenomena reinforced by chemical and pathologic reading and ratified by appropriate laboratory studies. No teacher of physiology should be less than an experienced clinician.

Austin Flint, New York University.—I believe that a professor of physiology should be a practitioner of medicine and should give much time to the teaching of applied physiology; but the general practitioner or clinical teacher, unless he is a close student of physiology and keeps up with its progress, is likely to make serious errors in referring back to physiology. In my opinion it is preferable for the physiologist to make the applications of his subject to practical medicine.

The above being the rôle of the professor, his lectures should be supplemented with practical demonstrations to students in laboratory work sufficient to teach students the methods of physiological instruction, so that clear ideas may underlie what students are expected to acquire by efforts of memory, otherwise, when the memory of details fade, everything is lost.

As regards physiology, the fact that its teaching is often given over to pure physiologists, most of whom are not practitioners and have little knowledge of practical medicine, is gradually separating this important subject from medicine, to which it should become more and more closely allied as knowledge progresses.

John C. Curtis, Columbia University.—Regarding lectures upon "applied physiology," I must quite frankly say that the proposal of such does not commend itself to me. The applications of physiology should, in my judgment, be pointed out partly by the physiologist and partly by the clinical teacher, in order to be effectively dealt with, and to react effectively upon the teaching of physiolgy and of clinical medicine and surgery.

Winfield S. Hall, Northwestern University Medical School.—"I believe that your position is altogether the correct one. I have been convinced of the inadequacy of the teaching of physiology for several years and have endeavored to correct this so far as possible in our own institution. I find, however, that the presentation of physiology as an experimental science necessitates the introduction of many ex-

periments and discussions that do not have a direct clinical application. My new Manual of Experimental Physiology will show you how near I was able to solve the problem. I am not, however, satisfied with that solution, and have already attempted another, which I think is quite in line with what you propose. I have been revising my text-book of physiology and have written an addition to each chapter of special physiology, which I have entitled "Pathological Physiology" of Blood, Circulation, Respiration, Digestion, Metabolism, etc., etc. These several sub-chapters appear at the end of the respective chapters of normal physiology. It is proposed that each medical class shall have a course in pathological or applied physiology during their junior year after this year. This course will be given by men who are at present in active clinical work, but men who have had a thorough physiological training in experimental physiology."

ON THE HYPODERMATIC USE OF ADRENALIN CHLORIDE IN THE TREATMENT OF ASTHMATIC ATTACKS.[1]

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SINCE the appearance of a like article in the MEDICAL NEWS, October 24, 1903, several observations were made which somewhat modify our original conceptions, especially in regard to dosage as well as in regard to results from the use of the drug. An opportunity for studying a greater number of cases of asthma has caused a radical change in the dosage of the drug. Further insight has led us to include among the exceptions what we previously considered the most effective results as observed in the patients previously treated. However, the promptness with which an attack of asthma is checked in every instance, made adrenalin chloride in the Montefiore Hospital a very popular drug and a remedy thoroughly to be relied upon in asthmatic seizures. Up to date it still holds its reputation, for when properly used no failures have been encountered. Before the proper posology of the drug was understood a few failures were encountered. These failures mainly caused the studies in this paper and a brief consideration of the first few will not be out of place.

Case I.—Mrs. M., aged thirty-five years; married; houseworker. Family history negative. Personal history: Had much worry and excitement; rest, of no importance. Previous affections: None up to present illness. Present illness: After exposure to cold during the winter of 1901 began to cough. Bronchitis lasted two months. After the subsidence of the bronchitis patient developed periodic severe attacks of dyspnea coming on after exertion. No medicine did her any good. In 1903 dyspnea was so severe that she had to enter a hospital.

Status Præsens.—Female patient, average build; no skeletal deformities excepting barrel-shaped thorax. No somatic nor psychic stigmata of degeneration. Vegetative organs in a good condition. Signs of disease: Neck short and thick; sternomastoids hypertrophied; auxiliary muscles of respiration brought into play during expiration. During inspiration thorax lifted en masse. Heart: Boundaries and force obscured by extensive emphysema; no murmurs. Pulse: Diminished tension, 90 per minute. Blood pressure: Systolic, 130; diastolic, 85. Lungs: Palpation: tactile fremitus very much diminished all over the chest. Percussion above clavicles, slightly impaired note; below clavicles, pulmonary resonance increased throughout. Inspiration short and harsh, expiration long and wheezy. Typical asthmatic râles all over chest.

Laboratory Reports.—Average urine examination: Quantity in twenty-four hours, 1,200 c.c.; sp. gr., 1.014 to 1.019. Reaction acid. Albumin, absent; sugar, absent; bile pigment, absent; blood, none; urea, 14 to 20 grams; indican, none. Chlorides and sulphates, normal; diazo, negative. Microscopical examination: At times triple phosphates and a few white blood corpuscles.

Hb.	Red Blood Corpuscles.	White Blood Corpuscles.	Neutrophiles Per cent.	Basophiles Per cent.	Eosinophiles Per cent.	Large Lymphocytes Per cent.	Small Lymphocytes Per cent.	Transitional Per cent.	Myelocytes Per cent.
120	5,600,000	4,000	88		2	5		5	
110	4,032,000	10,000	76		4	8	9	3	
100	6,224,000	7,200	69		6	9	9	5	
90	4,616,000	7,400	71		5	7	12	5	

Sputum Examinations.—Quantity large after an attack. Tenaceous and frothy. No blood, no tubercle bacilli. After standing for thirty-six hours a few Charcot-Leyden crystals. Many hundreds of eosinophile cells, a number of which are of the myelocyte type. Only on one occasion was a Curschmann spiral seen about ¾ cm. long.

Gastric Contents Examination.—Free hydrochloric acid 0.17 per cent.; normal in every other respect.

Feces Examination.—No blood, undigested food or any other pathological matter.

This patient, whose attacks were extraordinarily severe, received on one occasion 10 minims of adrenalin chloride at a dose. After a lapse of ten minutes no relief followed. In order to relieve her sufferings large doses of narcotics were resorted to, for at that time it was not thought advisable to inject more adrenalin chloride. When a still more severe attack developed next day it was decided to give a larger dose than had been administered before; 20 minims were injected in one dose. Five minutes later both the subjective as well as the objective symptoms of the attack were very much relieved and sleep followed. For a period of three weeks the attacks were cut short by doses ranging from 20 to 25 minims, given in

[1] Continuation of an article on this subject in MEDICAL NEWS, October 24, 1903.

two injections ten plus ten or fifteen plus ten. Each time complete relief promptly followed. Since then attacks can be controlled by 10 to 15 minims, the effect of the drug being manifested by the interesting phenomena to be spoken of later. This also tends to show that there is no tendency to the formation of a habit and that a tolerance to the drug is not established.

Case II.—Male, aged forty-eight years; married; driver. Family history: Father died from a cerebral hemorrhage. Personal history: Childhood eventless. Married at twenty-two. Wife suffers from a pulmonary affection for a number of years. A son, twenty-two years old, suffers from Pott's disease of the spine. Patient's habits are moderate. Present illness began four years ago with a neglected cold. Had attacks of great dyspnea which were relieved by bringing up phlegm. Dyspnea came on every week and would last a few days. These attacks appeared more often before or during bad weather and more frequently during winter than summer. During last three years patient lost 35 pounds. Never had hemoptyses.

Status Præsens.—Tall male, no skeletal deformities. No stigmata of degeneration. Vegetative organs in good condition. Panniculus adiposus deficient. Signs of disease: Thorax average length, width and depth; epigastric angle obtuse. Sternomastoids prominent and hypertrophied. Heart: Apex beat weak and preceded by a soft thrill. Cardiac dulness obscured by emphysema. Auscultation: All cardiac sounds weak and distant, no murmurs. Pulse: Poor tension. 80 per minute, regular, equal on both sides. Blood pressure: Systolic, 130; diastolic, 105. Lungs: Respiration costo-abdominal in type. Most of the respiratory movements are not anteroposterior but from below upward, lifting the entire chest en masse. Palpation: tactile fremitus diminished all over. Percussion: Pulmonary resonance increased all over. Auscultation: Prolonged expiration with scattered large and small wheezing and whistling râles.

Laboratory Reports.—Average urine examination: Quantity in twenty-four hours 1,560 c.c., sp. gr. 1.013 to 1.019. Reaction acid. Albumin never. Sugar never. In every other respect normal. Urea average 14 grams. Microscopically at times a few crystals of triple phosphate.

Hb.	Red Blood Corpuscles	White Blood Corpuscles	Neutrophiles Per cent.	Basophiles Per cent.	Eosinophiles Per cent.	Large Lymphocytes Per cent.	Small Lymphocytes Per cent.	Transitional Per cent.	Myelocytes Per cent.
100	3,500,000	13,200	47	1	11	17	21	3	
100	6,108,000	7,400	52		12	10	26	2	
100	5,920,000	11,800	72		6	6	14	2	
110	5,760,000	8,400	69	1	6	7	15	2	

Sputum Examination.—Average quantity; frothy viscid. No tubercle bacilli; very few Charcot-Leyden crystals after standing for thirty-six hours. No Curschmann's spirals were seen. A few eosinophile leucocytes and myelocytes.

Gastric Contents.—Free hydrochloric acid 0.14 per cent., otherwise normal.

Fæces Examination.—Negative.

In this case an initial injection of 5 minims of adrenalin chloride was given and the patient observed for ten minutes. Dyspnea was not in the least influenced, the râles were as abundant as before and the pulse tension still as poor as before the administration of the drug. It was thought advisable to give 10 minims more. As a result the pulse tension was slightly better, but the dyspnea was hardly influenced and the wheezing and sonorous râles were as loud and as abundant as before. Discouraging as this experience was, the use of the drug was not given up and in another attack 10 minims were injected, followed in five minutes by 10 minims more. The pulse tension was at this time appreciably better and the patient felt somewhat relieved, but there were still râles in abundance all over the chest, and half an hour elapsed before there was a decided improvement in the breathing. It was therefore inferred that in some cases where the disease has produced pronounced emphysematous changes the attack will not be influenced as readily by small single doses which are efficient in patients whose disease is not so far advanced. When another attack developed 20 minims of adrenalin chloride were at once injected. This time the patient felt much better in less than five minutes, the dyspnea entirely disappeared, but auscultation still showed a number of râles here and there. It was then decided that this patient should always receive a large dose at the first injection, to be followed by a smaller one after a short interval. The next attack was entirely cut short by an initial dose of 15 minims followed in three minutes by another of 10 minims. This time there was a marked improvement in both subjective and objective symptoms. Evidently, the intrathoracic status of this patient had progressed to such a degree that the above heroic measures were necessary to influence it. Attempts were made to cut short succeeding attacks with smaller doses, such as 10 minims followed in a few minutes by 5 more with sufficient success to hope that in the future gradually smaller doses will suffice.

The above experience and a number of others allow the conclusion that a constant method of treating asthmatic attacks with adrenalin chloride is not to be thought of, but, that each case must be treated individually. This being the case, the next question that naturally suggests itself is, By what data is one to be guided in treating an asthmatic seizure, and what are the limitations to the use of adrenalin chloride?"

These questions can be answered only by a knowledge of the patient's previous attacks, his lung status, namely, the extent of the emphysema, the diminished elasticity of the pulmonary parenchyma and the secondary effects on the heart and blood vessels. In individuals of adult age who have suffered for a long time, whose attacks develop nearly every other day, each seizure lasting

four or five hours on an average, where large doses of narcotics would give no relief, it is evident that a large initial dose of adrenalin chloride will be required. This large dose is especially indicated where extensive emphysema and a weak heart complicate the case. However, large doses should never be given if no more than the above is known about the patient. What is of prime importance and that which is the safest guide to the amount of adrenalin chloride to be injected, is the condition of the pulse. A careful study of the heart and pulse as to regularity, force and tension is indispensable.

This cannot be too strongly emphasized. By this factor alone a great deal can be learned as to the amount to be used, for the less the tension in the radial artery the less the tension in the pulmonary capillaries, therefore the dose must be larger to augment this tension.

Again, if the patient is old, is naturally of a neurotic temperament, or has decided arteriosclerotic changes, this being easily ascertained by a careful study of the pulse, such a patient should receive a guardedly small initial dose, for it is self-evident what might follow the use of a large quantity of adrenalin chloride in an individual with brittle arteries. In such a case, an initial dose of 5 or 6 minims should be resorted to and if this gives no relief another similar dose five minutes later. Meanwhile the pulse is to be observed, an increase in the tension being an excellent indicator that the seizure is subsiding. If there is no appreciable increase in the tension, another dose of 5 minims can be injected with safety, until the pressure is decidedly raised. Thus an idea is readily formed as to the quantity necessary to influence an attack, and the next seizure that develops is treated by a correspondingly larger dose at the first injection.

The patients at the Montefiore Hospital receive an initial dose of 5 or 10 minims, according to the condition of the patient, and from the experiences at the first treatment the dosage for a future attack is learned, which is usually higher in the beginning and tends in the course of the treatment toward a smaller dose.

A few words as to patients suffering from functional or organic nervous disorders. All neurasthenics, as a rule, who receive adrenalin chloride are influenced to the full physiological extent by comparatively small doses. If such a patient is not affected by 5 or 10 minims the dose can be increased to 15 minims the next time, the result being an exaggeration of the constitutional effects of adrenalin chloride. These effects will be spoken of later.

Patients who suffer from multiple sclerosis or locomotor ataxia are similarly influenced by such small doses as 3 or 5 minims. The spasticity in the first, in the second the ataxia is markedly exaggerated, together with the other signs of the action of the drug.

Next in importance is the ability to recognize whether the drug is producing its full effect. This is always accompanied by a train of symptoms which must be obtained in every case before one can be sure of the effectiveness of the treatment. If the injections are not carried to this point the seizure may recur in a short time with as much distress to the patient as if no adrenalin chloride had been administered.

The symptoms which develop are the physiological effects of the drug and always take place when amounts are given which completely check the attack. These symptoms will be described seriatim. First and of greatest moment is the increase in the tension of the pulse. This phenomenon takes place in from three to ten minutes from the time of the injection, the time of its appearance depending upon the amount injected, the patient's age, his heart and lung status, the duration of the attack and his nervous irritability. It will be found that a pulse which before the injection was hardly perceptible becomes distinctly appreciable, and it takes more pressure to obliterate the artery than before, a fact which can be conclusively demonstrated by sphygmographic and blood pressure readings. Below are a few such observations. (The instruments were not removed while observations were made, but remained on the arm until the full effect was obtained.)

Case I.—Observations made during one of the attacks. 2.19 P.M., Pulse, 78, of poor tension. Systolic pressure, 120; diastolic pressure, 85. 2.20 P.M., 15 minims of adrenalin chloride were injected; 2.24 P.M., dyspnea slightly better; 2.30 P.M., tension better; dyspnea nearly gone; tremor of fingers; 2.36 P.M., pulse, 72; tension, good; systolic pressure, 135; diastolic pressure, 100. Attack over. Signs of attack gone.

Case II.—4.20 P.M. pulse, 106; systolic pressure, 135; diastolic, 110; 15 minims of adrenalin chloride were injected. 4.25 P.M., no improvement; 10 minims more were given. 4.30 P.M., dyspnea less distressing; pulse tension rising; râles still abundant; no tremor. 4.40 P.M., pulse, 106; tension decidedly higher; systolic pressure, 170; diastolic pressure, 120; dyspnea gone; râles rapidly vanishing; tremor of fingers slight. Patient very much relieved.

It will be seen from the above data, that most of the dyspnea is gone and the asthmatic râles not so loud and less numerous. Accompanying this improvement is a distinct pallor of the face. The treatment may be stopped here, the patient feeling much relieved, but unless, after a lapse of five minutes the other symptoms appear, the attack is liable to return the same day or night. The next symptom is highly characteristic of a subsiding asthmatic attack, whether treated by adrenalin chloride or otherwise, namely, coughing up a little frothy mucus. This gives the patient considerable relief, the dyspnea being nearly gone and the auscultating ears are hardly able to detect a râle. By this time the blood pressure and vigorous cardiac action have reached their acme, the sphygmograph conclusively demonstrating the latter. In

every case where pulse tracings were made it was found that the systole is shortened and the diastole lengthened, the drug acting exactly like digitalis, only much more diffusibly. If the treatment has been successful the third symptom will appear in the shape of a coarse tremor all over the body, best observed in the extended fingers of the hand. This tremor also affects the speech, the tongue being distinctly tremulous. This sign usually takes place soon after the expectoration of phlegm, the patient always noting its advent by a feeling of nervousness. Though this is not an agreeable feature to the patient, the tremor at times lasting half an hour, this point must be reached before one can be certain that the attack has been completely checked. If it takes more than fifteen minutes for this symptom to appear another dose of 5 minims should be injected. It often happens that together with the tremor the patient experiences a sense of oppression or even pain over the region of the heart, giving him an anxious look, but this cardialgia is of no importance and can be readily relieved by an ice-bag to the precordium, if necessary. In my experience serious results have never been observed. The description of these symptoms will not be complete without an attempt at their elucidation: The first symptom to be explained is the increase in the blood pressure. I have been able to demonstrate this by the following experiments: (*a*) An animal under chloroform anesthesia, whose heart commenced to give out, received 3 minims of adrenalin chloride into the general circulation; in less than one minute the heart resumed its action with as much vigor as if nothing had happened to it. At the same experiment the heart was allowed to cease beating for one minute, then 3 minims of the drug were injected directly into the heart muscle, this time it took only a few seconds for the heart to resume its activity. (*b*) By its effect on an inflamed conjunctiva its contracting action on the arterioles can be readily seen. (*c*) Contraction of the vessels regulated by the splanchnic system of nerves as shown by the pallor of the stomach and intestines after the use of the drug. (*d*) Stimulation of the vasomotor center in the medulla.[1]

The second symptom is the cough and expectoration; this is due to an increased secretion from the trachea and the bronchi. It has been proven that adrenalin chloride is a stronger antagonist to atropine than pilocarpine. (See Cushny). The tremor is most likely due to an action upon the skeletal muscles similar to that exercised by the drug on visceral muscles.

Next to be considered are a few drawbacks to the use of adrenalin chloride, which have occasionally appeared in the extensive literature on this drug. Among the most disagreeable effects noted was the development of gangrene at the point of injection.

Since the introduction of the use of this remedy in the Montefiore Hospital at least 4,000 injections have been given by me, mostly to relieve asthmatic attacks, but also for heart failure, pulmonary hemorrhages, metrorrhagia, etc., but at no time was anything suggesting gangrene noticed, in fact, we have experienced no trouble at any time. Another drawback is glycosuria, which is reported to be a constant accompaniment to the use of this drug. To study this question experiments were performed in the following manner: Twelve patients, who were to be experimented upon, had their urine examined for two weeks and no sugar was found. (During these two weeks these patients received no medicines.) Then followed a series of tests for two weeks; each patient receiving from 30 to 45 minims of adrenalin chloride daily.

The results among 360 urines thus tested were as follows:

	Average pro die	
	Before Adrenalin	After Adrenalin
Quantity	1,225	1,166
Reaction	acid	acid
Sp. gravity		not changed
Albumin	none	none
Uropeptone	none	none
Albumoses	none	none
Bile and blood pigment	none	none
Indican[1]	none	none
Chlorides	normal	normal
Sulphates	normal	normal
Sugar	none	none
Diazo	negative	negative

1 One patient, whose urine contained an increased quantity of indican before the use of adrenalin chloride, also gave a strong reaction of indican after the administration of the drug.

Microscopical Examination.—No change; no casts; no blood or other indications of interference with the kidney functions were observed.

The urines of three diabetics were also examined and careful quantitative tests were conducted for ten days. For the following ten days each of these patients received 45 minims of adrenalin chloride daily, hypodermatically, and the urines were tested in the same way. There was no increase in the amount of sugar excreted, on the contrary, a diminution was noted, as can be readily seen below:

Patient I. —Before adrenalin, 1.47, after adrenalin, 1.25
Patient II. —Before adrenalin, 1.48, after adrenalin, 1.35
Patient III.—Before adrenalin, 2.96, after adrenalin, 2.06

If a conclusion is to be permitted from the number of patients studied in the Montefiore Hospital, it is safe to say that the contra-indications to the use of adrenalin chloride are generally overstated.

If carefully administered the drug may be used in effective dosage even in subjects with arteriosclerosis.

It is fair to contend that we have in adrenalin chloride a drug which is more efficient in the relief of asthmatic attacks than those ordinarily used in the treatment of those conditions.

1 Cushny. Pharmacology and Therapeutics.

That even large doses of the drug freely used do not give rise to a glycosuria.

That adrenalin chloride has a distinct place in the therapeusis of asthmatic seizures.

Although relieving the paroxysms with greater promptness and certainty than most of the other drugs at our command the hypodermic use of adrenalin chloride is in no sense curative of the disease as such and equally useless are prophylactic injections.

In closing, I wish to express my sincere thanks to Dr. Harlow Brooks for his kind advice and instruction.

My thanks are also due to Dr. S. Wachsmann, house physician to the Montefiore Hospital, for his kind permission to use the materials for the above studies. I regret that the absence of Dr. Jesse G. M. Bullowa has prevented him from collaborating with me in the preparation of this work.

PRINCIPLES GOVERNING THE TECHNIC OF ROENTGEN RAY THERAPY.[1]

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ON account of the great variation in the results obtained by those using the X-ray for therapeutic purposes there is evidently a variation in their apparatus and manner of application. The manner of application is of more importance than the apparatus, because the deficiencies in the apparatus can usually be overcome or compensated for by duly regulating the other factors concerned in the application.

The manner of application should be based upon the physical laws governing the ray, the pathological action of the ray upon living tissues and the pathological condition to be treated. Due consideration of these principles by all operators will make the technic more uniform and the results more constant.

The Roentgen ray is a form of radiant energy and consequently its energy, or power to do work, varies inversely as the square of the distance from the source of energy, which is the reflector usually attached to the anode. More energy is given off from a tube when there is less resistance in the tube or secondary circuit. A larger proportion of the energy from such a tube is absorbed in the tissues, that is, it does not entirely penetrate.

To state these two propositions conversely: A soft or low vacuum tube, or one having less resistance in the tube or secondary circuit, gives forth a larger absolute amount of energy and a larger proportion of absorbable energy. A hard or high vacuum tube, or one that has great resistance in the tube or secondary circuit, gives forth less amount of energy and a proportionately smaller amount of absorbable energy; that is, it gives forth a penetrating ray with little energy.

In the above paragraphs by the word energy is meant the physiological "working power" of the rays. This power is due rather to the quantity of the rays than to their penetrating quality or to the mass multiplied by the velocity.

From a soft or low resistance tube there is given off a large quantity of rays of small penetrating quality of low velocity; and from a high resistance or hard tube is given off a smaller quantity of rays of high penetrating quality with high velocity.

From the physical standpoint the energy emitted may be the same, but physiologically the "working power" varies greatly.

Naturally, therefore, the most effective therapeutic ray is not the most penetrating ray, but the reverse. One must be cautious not to mistake a ray that does not penetrate on account of weakness or lack of energy from one that does not penetrate on account of its natural quality. A little experience readily differentiates these two conditions.

The principal fact in connection with the physiological action of the ray is that it appears to affect the life or vital principle which resides in the cells alone. At first there is an apparent stimulation or an increase of the vital functions. This stimulation is quickly followed by a cessation of the vital activities. Life leaves the cells. The cells now degenerate and the debris is absorbed or cast off. In doing so they excite the changes in the tissues which are commonly termed inflammatory and are consequent upon the degeneration, absorption and repair. The cells in which the vital manifestations are most active as represented by their functional or proliferative activity are the cells that are most readily influenced by and succumb to the ray's destructive influence. The vitally active cells are more complex in their mechanism and hence most readily disturbed. The tissues are acted upon in proportion to their cells and in proportion to the activity of their cells. This explains the specific or selective action of the ray upon malignant growths which are composed of cells and these cells very active.

To produce a stimulant action only a small dosage should be given. This is illustrated by the fact which more than one operator has observed that patches of psoriasis have healed on the opposite side of the body to which the ray is applied, apparently showing that even the small amount of energy remaining after the ray has penetrated the body is sufficient to stimulate the morbid cells of psoriasis to their normal activity.

Every operator should by experiment or by experience determine the number of minutes which under fixed conditions are required to produce a reddening of the normal skin. With this as a guide, by properly regulating the controlling factors he can bring about any desired effect from stimulation to necrosis, and from a superficial effect to one that is nearly uniform from the surface to several inches beneath, if we can exclude the energy lost by absorption.

To produce a superficial effect the tube should

1 Read before the Richmond (Va.) X-ray Conference, March 7, 1905.

be close to the surface, and for a deep effect the tube should be far from the surface. This point has been more elaborated in an article published in the Medical News of March 26, 1904.

Superficial carcinoma can be destroyed without producing even a redness of the surrounding normal skin because of the selective action of the ray for such growths as has already been explained.

The result of an exposure is not perceptible for a variable number of days thereafter. Therefore no more than the number of minutes required to produce a redness should be given in a week or ten days, unless a necrotic effect is to be produced.

Treatment should be given in series of daily exposures with intervals of several days between series to watch the effects. The sum total of the number of minutes should approximate the average that has been found by experience to produce the effect desired. It is not advisable to accomplish this in one or two exposures until our means for measuring the quantity and quality of the radiant energy from the tube are more accurate and idiosyncrasy becomes a better known factor. The effect should be approached gradually, and not less than four exposures should be given in one series.

Idiosyncrasy should not be ignored, although it has undoubtedly been held responsible for the effects resulting from a lack of appreciation of other factors. The idiosyncrasy or susceptibility of the skin in different parts of the same individual doubtless varies more than similarly situated skin of different individuals. A part that has once been affected by the ray becomes more susceptible to the ray's influence. This fact should be duly considered in giving treatment in series by making subsequent series shorter.

For the bactericidal effect of the ray sufficient energy must be given in a single exposure to destroy bacteria, otherwise the bacteria regain in the interval between exposures the vitality only impaired by a short exposure. It is for this reason that patches of lupus must be given more prolonged exposures than non-parasitic conditions. The treatment must usually be carried to the point of necrosis of the superficial cells before the bacteria lying beneath them are destroyed.

The above remarks are based upon the physical laws and observations, the result of experience and experiment. They may be modified by further study. There are certain points to be more satisfactorily explained or determined, (1) the cause of the anodyne effect; (2) the proportion of the effectiveness of the ray lost by absorption in or in penetrating the tissues; (3) the reason why a few layers of gauze, the resistance of which to the ray is hardly perceptible on the fluoroscopic screen, should diminish so markedly the effect upon the skin and also the bactericidal effect; (4) Is the X-ray made up of rays of different physiological action?

It is to be hoped that those having the opportunity will carry out such studies for the solution of problems so essential to the full development of this new and powerful therapeutic agent.

COMMON CAUSES OF GYNECOLOGICAL DISEASE, WITH SOME REMARKS ON PROPHYLAXIS.[1]

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In selecting a subject on which to address you, I was naturally tempted to choose a surgical topic, and to discuss some operative procedure, with the results in my own practice, but on reflection it has seemed to me that it would be best to avoid a technical subject, of interest only to the specialist or surgeon, and to take one which would be of interest to the greatest number. Therefore, I have chosen a broad one, where we can all meet on a common ground to our mutual benefit. For whether one devotes himself to surgery or medicine, the responsibility of subsequent gynecological disease may often lie at the physician's door.

It is a remarkable fact that in the standard text-books of the Diseases of Women, it is extremely difficult to find any reference to the subject of prophylaxis in gynecology. It is true that in the descriptions of a disorder, for instance, as in subinvolution, the various causes that bring about this condition will be mentioned, so that the student may infer that the avoidance of these causes would naturally be the prophylaxis of the disease. But a collective study of the causes and prevention of the diseases of women, the subject being treated as a whole, so as to enable the student to appreciate why woman, in her highly civilized state, should be so prone to disorders of her generative organs, is not usually found in text-books on gynecology.

This is regrettable, as a large proportion of these diseases are preventable, and if the causes and etiological factors were given more prominence in the teaching of gynecology, the physician would be influenced to avoid these pitfalls, and thus save many a woman from an operation or chronic invalidism.

Prophylaxis means prevention, and in order to intelligently prevent the occurrence of any disorder, it is paramount that we understand the cause. An analysis of the various gynecological diseases soon shows us that gonorrhea and some trouble with the child-bearing function, in one manner or another, are the most prolific causes of a majority of the disorders.

The period of puberty is a time when improper habits and hygiene may have an important bearing on the future condition of the pelvic organs. The child who at this age is not allowed to romp and play, whose abdominal muscles are early imprisoned by tight corsets, who has not sufficient sleep, and who lives on improper food, will reach

[1] Read by invitation before the Practitioners' Society of Eastern Monmouth, at Red Bank, N. J., on February 16, 1905.

the child-bearing age with an excess of fat in her muscle tissue, and with undeveloped abdominal muscles and uterus. The natural result is inertia uteri, and the necessity of artificial delivery with its dangers. Constipation, improper attention to the function of micturition, and imprudence during menstruation, are habits usually acquired during puberty, and these, coupled with too frequent child-bearing, are productive of disease. Their frequency is well exemplified in the old definition of a woman, as "a being who micturates once a day, defecates once a week, menstruates once a month, and parturates once a year."

Gonorrhea in the female is recognized to-day as one of the most dangerous of diseases. Its true position, and the destructive lesions that it may lead to, have been so emphasized of late by the ablest authorities, that the physician in general practice is beginning to understand why the specialist fears it worse than syphilis.

It is of interest to know that the present opinion of the true import of this disease is in perfect accord with the views advanced by Noeggerath in 1876, nearly thirty years ago. At the time of the founding of the American Gynecological Society, he published his deductions which are recognized as truths to-day. He stated that "Gonorrhea in the male, as well as in the female, persists for life in certain sections of the organs of generation, notwithstanding its apparent cure in many instances;" that "there is a form of gonorrhea which may be called latent gonorrhea in the male, as well as in the female;" that "latent gonorrhea in the female, either the consequence of an acute gonorrheal invasion or not, if it passes from the latent into the apparent condition, manifests itself as acute, chronic, recurrent peritonitis or ovaritis, or catarrh of certain sections of the genital organs;" that "about 90 per cent. of sterile women are married to husbands who have suffered from gonorrhea previously to or during married life." How near the truth he was thirty years ago we all realize now. According to Wertheim, gonorrhea is the most frequent cause of suppuration in pelvic diseases. Sänger states that one out of every eight cases of gynecological disease is due to gonorrhea as the underlying cause. Sänger and Rosthorn found disease of the tubes in 33 per cent. of all women affected with gonorrhea.

In studying gonorrhea in women, we find that the seriousness of the disease in any case is dependent upon its location. The destructive lesions, resulting from the infection, are found in the uterus, tubes or ovaries, and the pelvic cavity. These lesions produce the serious sequelæ which ultimately terminate in the calamities of castration, salpingectomy and hysterectomy, with the resulting sterility or premature menopause. When the disease is confined to the regions below the cervix, its manifestations are mild and of far less consequence to the woman, than in the situation just mentioned. It behooves us therefore in every case of suspicious discharge from the lower genital tract, to make immediate microscopical investigation, for no one can say any discharge is or is not gonorrheal without the aid of the microscope. Should the gonococcus be demonstrated, the first thought in our minds should be to limit the scourge, and confine its ravages below the danger zone—the cervix. Our handling of the case then, to be rational, should consist in protecting the vulnerable uterus and its appendages from the invasion, and to endeavor to destroy the gonococci as speedily as possible wherever found.

Yet, what is the method most in vogue when a patient presents herself with an acute attack of vulvitis or urethritis? A douche containing some germicide is the usual prescription, and the woman goes home and inserts the douche nozzle through the vulva opening which is bathed in gonorrheal pus, and carries the same as speedily as possible to the region of the cervix. The method I have followed for a number of years, in treating these cases is to absolutely prohibit the douche, to make a thorough local application to the whole vulva, and any portion of the vagina if affected, with a 20 to 30 grain to the ounce solution of nitrate of silver on a swab, and then to pack the upper vagina with gauze saturated in a 1/5,000 solution of bichloride of mercury, to wall off and protect the cervix from the danger of an extension of the disease from below. The patient is then instructed to frequently bathe the external genitals with a bichloride or other germicidal solution. This treatment, repeated every other day, will in three or four applications cause a subsidence of the manifestations of the disease, and, I believe, will save many cases from an involvement of the uterus and its appendages. I would urge the importance of regarding every acute discharge in women with suspicion, and prompt detection and vigorous local treatment of this disease in its early manifestations, is a most important preventive of serious pelvic trouble. A few years ago Polk, in a communication to the New York Obstetrical Society, advanced the propositon, that given a case of recent gonorrheal infection of the uterus, with commencing tenderness and enlargement of the tubes, instead of treating the condition expectantly, one should promptly open the cul-de-sac, incise the tubes, and insert a gauze drain into the vagina as an abortive measure for pyosalpinx. Why are we justified in waiting and doing nothing, thus allowing the tubes to become distended with pus, and to be hopelessly destroyed, any more that the otologist would be justified in neglecting to incise the tympanum in acute purulent infection of the middle ear, to prevent destruction of the ossicles and invasion of the mastoid?

A common means of the transmission of the disease from one patient to another, is from the improper sterilization of specula, sounds, etc., that the physician uses during his examination or treatment. The only safe method is to boil all instruments after each use. An ordinary fish-

kettle over a gas burner should be kept going throughout the office hour, and thus the instruments may be dropped in and rendered absolutely safe in a few moments.

Investigators agree generally that in about two-thirds of all women who seek relief from the gynecologist, the cause is directly traceable to trouble which has its origin in pregnancy. In a study of a series of consecutive cases of operative gynecology, occurring in my service at the Post-Graduate Hospital a few years ago, where it was possible to be reasonably certain of the cause of the disease, the exact percentage was 65.[1] On the face of it, this would seem to show that in some way or other, we as physicians are wofully unskilful in our management of pregnancy, or that womankind in the state that we find her has become so changed in regard to her physical condition from that of her sisters in precivilized times, that in a large number of cases she is no longer capable of bringing forth her offspring without artificial aid, or her health is seriously impaired by what we understand is a purely physiological function. The truth is undoubtedly that the mode of life, habits, dress, and lack of physical exercise, as followed by countless generations of women, has resulted in a type which is deficient in muscular power, nerve force, and proper osseous development. Consequently the stamina, muscular and nerve force, required to stand the strain of child-bearing, is lacking, just as it would be in any serious acute illness. While a high state of civilization has resulted in many unavoidable obstetrical complications with their sequelæ, it is unfortunately true that bad obstetrics is also responsible for a large number of the complaints to which women are especially susceptible.

It is not difficult to find convincing illustrations of this statement, if we but trace back a few cases of common gynecological disease. For instance, what is more common than a retrodisplacement of the uterus? In the vast majority of cases, this condition has followed a labor or an abortion. There has been an arrest of the process of involution from a tear of the cervix, from abandoning the recumbent posture too soon, or from retained products of conception. The woman gets up with a large heavy uterus, and relaxed, loose, uterine ligaments, for we must remember that the subinvolution affects the supports as well as the uterus. The necessary result is a falling over backward of the heavy womb, which the slack ligaments are unable to support. The unnatural position of the uterus causing a more or less twisting of the broad ligaments, and a consequent kinking or obstruction of the collapsible veins carrying the blood away from the uterus results in a venous congestion of that organ, which means, of course, an engorgement of the blood vessels of the endometrium. Thus, congestion of the utricular and Nabothian glands, situated in the endometrium, causes them to work "overtime," as it were, and we have a resultant excess of secretion pouring from the uterus, which we call leucorrhea. The constant venous engorgement favors a rapid proliferation of epithelium and the connective tissue elements, and we have the resultant changes, which we speak of as endometritis, the usual accompaniment of retrodisplacement. The leucorrhea, backache, menorrhagia, headache, so common in these cases, then, may be laid to the door of the physician, who perhaps was in a hurry, and ruptured the cervix in his haste, or was careless in allowing his patient to get up and go about before he had made certain by a final examination that the uterus had involuted properly and was in position, or he may have neglected to examine the placenta carefully to be certain that none of it was left behind.

In this day, lack of asepsis in obstetrics would be considered a crime by all, but as recent investigations show us how extremely difficult, if not impossible, it is for us to absolutely sterilize the external genitals, we are made to realize how careful we must be to take every precaution; and it should be remembered that carelessness here may result in sepsis, not necessarily a virulent one with grave danger to life, but one sufficient to sow the seeds of future trouble in the way of salpingitis and pelvic adhesions, with all their consequences.

When we realize the danger that lurks within the folds of the vulva, we hesitate to make unnecessary and repeated vaginal examinations during a labor, and we learn to rely more and more upon diagnosis by abdominal palpation. It would seem superfluous to reiterate the cardinal rule in the use of forceps, that we must imitate Nature to the fullest extent throughout the operation. Yet, how common it is, when the forceps are resorted to, for one blade to be slipped on to the head through a cervix one-third dilated, likewise the other, and then when they are adjusted, both locked together, are pulled through the undilated cervix which, while ample for the passage of the blades separately, is totally inadequate for both, the operator having totally forgotten that if he intends to imitate Nature, he must complete the first stage of labor before commencing the second.

Abortion, as an etiological factor in uterine disease, is a subject of great importance, in my opinion,[2] and I wish to dwell especially upon it as a cause of disease, and the results of the different methods of treatment.

Lusk says that a mismanaged abortion takes precedence over all other causes of uterine disease. Palmer Findley, in his recent work on Gynecological Diagnosis, states that subinvolution of the uterus, the result of postabortive infection, he believes to be the most prolific source of pelvic disorders.' Numerous other authorities could be quoted in the same vein.

I believe that the subject of abortion and its management does not receive proper consideration, as a rule, from the profession at large, and that the frequency of the serious results that may

1 The Post Graduate, April, 1900.

1 The Post Graduate, March, 1904.

follow are not fully appreciated. The difference of opinion as to the correct way to manage this condition unfortunately results in an imperfect conception of the subject and what should be accomplished by the treatment.

The great frequency of aborton is not disputable. Conservative estimates show that every fifth or sixth pregnancy ends in abortion among private patients, and this would be increased if it were possible to estimate the early cases. It is necessary to give a few moments of thought to the anatomical and histological conditions that exist in the uterus during the early weeks of pregnancy, and then to study the mechanism of abortion, to enable one to appreciate the factors which go to produce a condition of the uterus which predisposes to subsequent diseases. The ovum lies embedded in the decidua, which is the hypertrophied mucous membrane lining the uterine cavity. This hypertrophied mucosa begins to grow up around the ovum, until it has entirely covered it in. This reflected tissue is called the decidua reflexa. That portion of the decidua lying between the uterus and the ovum is known as the decidua serotina, whereas the hypertrophied endometrium lining the uterus and surrounding the ovum contained in the reflexa is the decidua vera. This decidua grows gradually thicker and thicker, until at the end of the third month it has reached its maximum of about half an inch. From this time the placenta is formed as a distinct organ, and a clinical difference in an abortion before and after its formation is observed.

Studies of the mechanism of abortion prove that it is very rare for the intact ovum to be expelled from the uterus with the decidua complete. In spite of the apparent completeness of the abortion, it is almost always possible to bring away pieces of the adherent decidua with the curette. The ordinary mechanism is for the fetus, or the ovum with the chorion, to burst through the reflexa and to be expelled, leaving the decidua vera, reflexa, and serotina to come away piecemeal later. After the third month, when the placenta has been formed, it is partially or completely adherent, therefore it is very prone to be retained, and its expulsion may be prolonged for weeks, and even months, unless removed by artificial means. Numerous cases of prolonged abortion have been published in the literature. Edgar gives the average duration as from twenty-four to thirty-six hours, therefore slow abortion is the rule, generally it is a slower process than a full term labor.

The weak uterine contractions of the as yet undeveloped uterine muscle fibers, the undue resistance of the unsoftened cervix, and the slow detachment of the adherent placenta, readily account for the slowness of the process. Berry Hart has studied the mechanism of abortion, by the examination of a number of uteri in the various stages of this condition, and he states that it is extremely difficult to decide whether an abortion is complete or not by the examination of the expelled fruit sac. Sometimes the ovum does not burst through the decidua reflexa, but is expelled enveloped in this decidual covering, the reflexa with the ovum having broken away from the serotina. Thus the entire decidua vera and serotina still remain in the uterus, lining its cavity, while an inspection of the oval sac covered with the decidua reflexa, with the amnion below this, and the fetus and liquor amnii inside, leads one to believe that the abortion has been complete. On the testimony of the foremost authorities, therefore, we must accept the fact that the decidua vera almost invariably remains in the uterus in the earlier months, to be expelled after everything else has been discharged. It may be compared to the skin of an unripe orange; it will not peel readily, and shreds and pieces are left behind, adhering to the uterine walls. In 176 cases of abortion, in the service of the Society of the Lying-in Hospital of New York, only 14 were considered as complete.

Joseph Tabor Johnson has summarized the condition present in an abortion tersely and accurately, as follows: "The occurrence of abortion takes the uterus at a disadvantage. It is immature, it is not ready to expel its contents, its contracting powers are not developed, and its contractions are imperfect after, as well as before, the act. The membranes are especially adherent, and frequently, if not always, some portion of them is retained after the premature expulsion of the embryo."

In view of the above, it seems to me beyond dispute that we must consider abortion as a pathological process; and if regarded in this light, it is not difficult to appreciate it as an etiological factor in uterine disease.

The retained remnants, from delay in their expulsion, become liable to putrefaction, and a localized sepsis is developed, which may extend to the tubes and pelvic peritoneum, causing salpingitis and adhesions. If the parametria are invaded by ways of the lymphatics, cellulitis will result. Endometritis and metritis are, of course, a frequent sequel. But the condition that I believe is responsible for the greatest number of subsequent troubles, is the subinvolution that is more prone to follow abortion than labor, although I think we are more apt to associate it with the latter.

It is insidious in its beginnings, and the resulting diseases develop slowly; therefore its importance is overlooked, as compared to the more acute disturbances associated with sepsis. The fact that the subinvolution is not confined to the uterus alone, but also involves the ligaments, its supports, should not be lost sight of. Consequently, an enlarged and heavy uterus, with relaxed and slack ligaments, will gravitate to a position of retroversion and prolapse, and the inevitable venous congestion will follow.

The absence of lactation, Nature's ally in favoring involution, and the usual too early abandon-

ment of the recumbent posture, aid in the arrest of the proper involution of the parts. Fränkel and Küstner have demonstrated that fibroids and fibrinous polypi frequently develop from adherent bits of decidua or placenta, by finding chorionic villi in the midst of such growths. The so-called deciduoma malignum is supposed by some to rise from decidual cells, or fetal relics.

The complications we have to consider, in dealing with a case of inevitable abortion, are the immediate dangers of hemorrhage and sepsis, and the remote results which we have enumerated above. The latter are very commonly lost sight of, in the efforts to combat the more apparent ones. Surely, we have not fulfilled our duty to our patient, if, though saving her from hemorrhage or sepsis, we leave her in a condition to develop a state of chronic invalidism.

The indications, then, to meet this problem are clear. The hemorrhage should be stopped at once, or else the woman will become anemic, and lose her resisting powers to sepsis. The entire contents of the uterus should be evacuated as soon as possible, for this material has now become a foreign body, it is prone to putrefaction. And, finally, the uterus should be left in a state of firm contraction, and in a condition favorable to the normal process of involution, which should be completed before the patient passes from our care.

We find that to accomplish the above requirements, two general methods of treatment are in vogue. There is, first, the so-called conservative plan of expectant treatment, with which you are all familiar, and which is probably followed by 90 per cent. of the profession at large. This method, which allows the uterus to empty itself and complete the abortion, if rational, must presume that the process is a physiological one, and that the uterus is competent to accomplish the evacuation without injury to the parts. That the uterus frequently fails to perform this work satisfactorily, I have endeavored to show. Therefore, I believe that the usual manner of handling an inevitable abortion is not based on sound logic, but that the method of treatment which is based on the theory that abortion is a pathological process, and not a physiological one, is a more rational procedure. This is the surgical method of radical intervention, so soon as the diagnosis of inevitable abortion has been made. While I previously stated that probably 90 per cent. of the general profession employ the expectant method, we find that among specialists opinions as to which is proper are about equally divided. In France and England, the expectant plan is almost universally employed. In Germany, the majority lean to the radical method; while in this country, authorities are greatly divided.

The gist of the argument in favor of the radical method, is contained in the studies made by Klein, on the process of involution of the decidua after abortion, and labor at full term. He states that after abortion the decidua vera remains wholly, or in part, in the uterus, and that the decidual cells die *in loco* by necrosis. This necrotic tissue is gradually expelled, and a new growth of epithelium springs up from below, all of which takes about six weeks. After a labor at term, fatty degeneration of the decidual cells occurs, forming a distinct line of separation in the deep layer of the vera, so that at labor, the placenta and all the membranes are expelled complete at once. Herein lies the argument in favor of treating the pathological condition present in an abortion in a radical manner, assisting Nature to get rid of the decidua, which she is not prepared to do at this early period, as she would be at term.

The expectant plan of treatment, it is not necessary for me to detail, other than to mention that while Nature is expelling the contents of the uterus, a tamponade of the cervix and vagina is employed to prevent hemorrhage, and favor the separation of the ovum. This is usually removed every eight or ten hours, and antiseptic vaginal douches given until the ovum is expelled. Should the hemorrhage gradually cease, or diminish after several days, the case is considered cured and discharged. If the hemorrhage persists in being profuse for a number of days, or a rise of temperature indicates septic absorption, an intrauterine douche is probable given, and if this fails, the patient is ultimately submitted to a curettage, often several weeks after the onset of the abortion. The frequent results accompanying this expectant treatment are a prolongation of the hemorrhage, due to the inability of the uterus to contract firmly while its cavity is but partially emptied, thus inducing anemia and lowered resistance. Remnants of the gestation retained in utero, being cut off from their blood supply, become necrotic and septic from the invasion of saprophytes, and the patient begins to show signs of septic absorption with resultant debility, and she arises from her bed with the seeds of uterine and pelvic disease sown on fruitful soil.

The radical method is, briefly, to empty the uterus in a surgical manner, with finger or instrument, at once, under anesthesia, and with all aseptic precautions. The uterus is then curetted, with a sharp curette, and packed with gauze, leaving it perfectly clean and in a state of contraction. The importance of proper and sufficient rest during the convalescence, and a careful supervision of the process of involution, are here as important as after a labor at term.

The principal arguments advanced against this plan of treatment, are the danger of infecting the uterus by lack of aseptic technic, the danger of perforation, and the necessity of an anesthetic.

As to the first and second objections, the Medical Report of the Society of the Lying-in Hospital of 1897 shows 317 cases of abortion treated by the radical method, by about 150 different operators, who were internes (that is, mostly undergraduates taking their obstetrical training at that institution), with no deaths and no perforations. It is certainly true that in incompetent hands,

some cases may be infected by imperfect technic, but the manifest advantages of no hemorrhage, with subsequent anemia, no subinvolution with its long train of complications, no septic absorption from retention of gestation products, in addition to the avoidance of pain, worry and loss of time, which the large majority of patients treated radically will enjoy, greaty outweighs this disadvantage.

Often when the expectant plan is followed, curettage has to be resorted to ultimately, and it is much safer for the inexperienced to curette the uterus in the beginning, than later, when the thinned and softened condition of the uterine walls, induced by sepsis, makes the danger of perforation much greater, and when the lowered resisting powers due to prolonged hemorrhage, makes infection more probable.

In my experience, patients are much less likely to object to the anesthetic while suffering from the pain and distress of the uterine contractions, than later. If used at the beginning, they regard it as part of the miscarriage, while later they feel something is wrong, and have all the dread of an operation.

In labor, we do a manual extraction for a retained placenta, if Credé and massage will not dislodge the secundines after an hour. Why should we differ in handling a retained placenta or membranes after an abortion? By the immediate employment of the operative treatment, we arrest the hemorrhage at once, prevent sepsis by removing retained material that will decompose if left, and we insure a proper involution of the uterus and its ligaments, thus preventing subinvolution and its sequelæ. Future abortions are also prevented, likewise anemia, and a prolonged convalescence, thus saving the patient much pain, worry and loss of time. In view of the very close relation that abortion bears to uterine disease, I believe we should treat it on the same sound principles that we treat hemorrhage and the prevention of sepsis generally.

Prophylaxis in gynecology, then, is largely dependent upon the proper conduct of a labor or an abortion. Disregard of the importance of ante-partum examination, and the cultivation of diagnosis by abdominal palpation, thus reducing the amount of vaginal manipulation during labor; the too ready resort to the forceps and their unskilful use, especially in regard to their application through an undilated cervix, the lack of inquiry as to whether the uterus has involuted properly during the puerperium, the neglect to immediately repair injuries to the pelvic floor, the failure to recognize the importance of gonorrhea in its earlier manifestations, and in my belief, the popular method of treating abortion,—are all common factors that go to make gynecology a specialty.

I have not attempted to cover the field of prophylaxis. Such an effort would be more than could be encompassed within the limits of this paper. I have but endeavored to dwell upon some of the most frequent causes of uterine disease, especially as they affect the physician in general practice. In the vernacular of the day, "it is up to" the man who has the care of these patients during puberty, pregnancy, and in the minor disorders of the genital organs, to realize his responsibility, and to appreciate how carefulness or carelessness in his treatment of these cases, may be directly responsible for the future health and happiness of those who have entrusted themselves to his care.

REMARKS ON TREATMENT OF FULMINATING APPENDICITIS.[1]

BY J. M. INGE, M.D.,
OF DENTON, TEXAS.

Successfully to handle or treat a septic peritonitis in the presence of streptococci and other of the most virulent germs due to a local infection is the purpose of the physician or surgeon, dealing with a case of fulminating appendicitis.

To interfere with, to stop short the invasion of the peritoneal cavity by this deadly enemy; whether by removing the local habitat and environments at once, or by giving to the leucocytes and omentum helpful management so that a substantial wall will result from the work of the leucocytes aided by the intelligent management or help of the physician, is the problem at issue, a problem discussed not only by those of us who are in the ranks and obscure, but by the leaders, who, by their skill as practical surgeons and experienced clinicians have acquired the right to speak with authority. It would be well if something could be done to dissuade surgeons, especially inexperienced and unskilful operators, from handling such cases in an operative way in the presence of an abundance of virulent toxins disseminating infection and making a fruitful soil for absorption of toxins.

That such mistakes are not confined to the work of obscure surgeons, the writer is well assured. Within the last few months, one of the most famous surgeons in all the south spent 2¼ hours manipulating the structures in the right iliac fossa, breaking up adhesions and making dissections to terminate a thorough radical operation in the presence of pus, which he did upon apparently one of the most promising subjects ever placed upon a table, with a fatal termination in a few hours. There is no doubt that skill is an important factor in successfully handling operative cases of appendicitis in a more marked degree than in any other work coming within the sphere of the average practical surgeon.

As we are dealing with the subject of a disease important from the standpoint of its great prevalence and large per cent. of fatality when not properly managed, and one that belongs to the work of every general practitioner and surgeon, suggestions made to each other born of our own observation and practical experience, will not go

[1] Read at Paris meeting of The North Texas Medical Association, December, 1904.

amiss. I will mention only to approve the method of operating within a few hours while the infection is confined to the appendix, and when too late for an early operation, waiting for more favorable conditions, which, through the management of the competent modern surgeon, will almost invariably come about, although by the older methods of only a few years past, such cases resulted in a large per cent. of fatalities.

The Ochsner treatment, beginning with stomach lavage, followed by quietude, and leaving off all nutriment, even fluids by the stomach, to prevent peristaltic action, so that localization of the infected area through adhesion of the omentum, would result, and protect the peritoneal cavity, marked an important advance in the successful treatment of fulminating appendicitis.

The question has often occurred to me: "What else can be added to the Ochsner methods to prevent peritoneal infection in such cases?" We well know that the infected material, whether serum or pus, will find its way along the line of least resistance, and that lymph exudation with adhesions occurs rapidly, soon affording ample protection to the main serous cavity if given an opportunity to do so, by controlling the infected material, whether by localizing it, or, better, by giving it an opportunity to escape elsewhere than into the peritoneal cavity, if this can be done without furnishing a soil fruitful for absorption of toxins. This we can do by the following method: If we have a case developing rapidly too late for an early operation, too early for a late operation, the mass or tumor, due to adhesions, easily felt by palpation, we adopt the course given by Ochsner to localize the infection. In addition, drain by a small stab wound, through abdominal muscles, transversalis fascia and peritoneum to the mass of adhesions. If pus escapes, use only a narrow strip of rubber tissue as suggested by Robert Morris, not wider than a pencil, if no pus, only serum, a small, loosely rolled gauze-wick surrounded by rubber tissue, not larger than a pencil. If there is no suppurative condition yet, pus may escape in a few hours. Whether pus or only serum escapes in small quantity at first, the capillarity is such that the flow of the infected material will certainly and promptly start in the direction of the drain and escape externally. Tissue pressure will force it along the line of least resistance, more especially so in cases of appendicitis where the muscles contract and are constantly rigid, much more so than in cases of salpingitis and ovaritis and other intra-abdominal inflammations; such drains will draw quarts of fluids from the abdominal cavity by capillarity.

Dr. Robert Morris says such a drain forces opposed peritoneal planes at a distance to act by capillarity from all parts of the abdominal cavity toward the point at which the greatest capillary power is being exerted. This brings about a condition followed at once by the work of the leucocytes, giving ample protection to the main cavity by building a substantial wall. With the course suggested added to the Ochsner method, which generally succeeds in localizing the infection, many are walking up and down the earth to-day, who would be resting in the cemetery by the old methods of incision and removing the appendix under all conditions. By the Ochsner treatment, we have, though incysted, often large pus cavities, by adding the drainage early, we have no accumulation and the condition of the patient is certainly safer if we prevent pus accumulation so near the peritoneal cavity. As evidence that drainage without even a foreign substance or drainage material will accomplish the purpose suggested, I give a case in point: I was called in consultation to a young man suffering from the second attack. The tumor was well marked at McBurney's point; pulse, temperature and pain and rigid abdominal muscles and restlessness gave evidence of an active condition and decided infection, too late for an early operation. Besides, his father objected to the knife. He agreed, however, that I should introduce a hollow needle or small trocar, not larger than a slate pencil, which I did, following in the track of same with one of the size of a lead pencil, covering the puncture with moist aseptic gauze, there was no escape of pus.

I said to the attending physician, I confidently expect good results from this light operation, as I had some experience in similar cases with the same treatment. He telephoned me next day that a small quantity of serum was escaping, mixed with a few pus globules, and that the tenderness on pressure was not nearly so marked. The patient's general symptoms were much improved, including the absence of pain, which I attributed to turning the tide of infection out, cutting short invasion of the serous cavity, rapid lymph exudation as the result and the leucocytes getting in their good work. A free flow of pus soon followed, and when we were assured there was a firm wall, I made an incision with the scalpel for the escape of any tissue loosened by sloughing that might chance to be present. The case terminated without any untoward symptom. Rather than go into detail, I will only mention that in the treatment of as many as ten similar cases after the same manner, the results were alike favorable. Until a comparatively recent date, I held with those of the consensus of opinion of the profession that practically all cases of suppurative peritonitis terminated fatally, but by skilful and judicious management we have a good per cent. of recoveries.

Dr. Murphy, of Chicago, reports sixteen such cases operated on by himself with only one fatality. He places a rubber drainage tube in the rectovesical fold, places the patient in a semi-sitting position, uses no irrigation, which in the opinion of the essayist, has been quite a factor in the past in adding to the mortality list. No gauze packing, no sponging. Dr. Murphy further wisely remarks: "Pus retained under pressure rapidly absorbs, whether in the peritoneal cavity or elsewhere, and to stop absorption, all that is necessary is to relieve the tension."

I submit a brief report of a case coming under the head of the class in which Dr. Deaver says,

operation is contra-indicated. I was called to a young man, about twenty years old, with diffuse peritonitis, abdomen distended, temperature high, pulse very rapid, with what is called a leaky skin tenderness diffuse over the entire abdominal wall. It seemed he had approached near that condition known as collapse. I declined to operate. But having explained the condition to the anxious father, and finding that he rather preferred that I make an incision for drainage, I proceeded, making an incision about three-quarters of an inch in length, followed by a free flow of pus. I stopped short further manipulation, not even to the introduction of drainage material, on account of a very weak heart. Before leaving the country home of the patient, we placed him in a semi-sitting position. I received report from his attending physician, the second day, that his condition was much improved. He made a tedious but uninterrupted recovery, with no sign of ventral hernia.

GONORRHEAL ARTHRITIS.[1]

BY HENRY W. FRAUENTHAL, M.D.,
OF NEW YORK.

In bringing the subject of gonorrheal arthritis before you this evening I do so with the hope of determining, through the discussion, such points in differential diagnosis as your personal experience might regard as valuable, and the best methods of modern treatment.

Gonorrheal arthritis, an inflammation of one or more joints due to the invasion of gonococci, was recognized as a complication of gonorrhea first by Petrus Forestus in 1507, and later by Musgrave in 1703; also by Hunter, Astley Cooper, Brodie, Bonnet, Foucart, Swediaur, and other early investigators. Eagle, in 1836, regarded arthritis as due to the use of copaiba. Brandes, in 1854, by means of his articles, brought the subject to the notice of the profession in general. The discovery of the pathogenic micro-organism of gonorrhea by Neisser in 1879, may be regarded as the landmark in the investigation of gonorrheal arthritis.

After Bochart by the cultivation of the gonococci, and by reinoculation of the infection, showed it to be the cause of gonorrhea, various observers successfully isolated gonococci from the exudate in the joints and proved the correctness of their diagnosis.

Still, the absence of the gonococci is no proof that the arthritis is not gonorrheal, as the micro-organism may have disappeared..

Petrone, in 1883, found it in the joint of two cases and in the blood of one (*Centralblatt für Chirurgie*, 1883, No. 7).

König recognizes four varieties of gonorrheal arthritis: the hydrops articularis, the hydrops articularis with a serofibrinous and catarrhal exudate, the empyema of joints, and the phlegmon of joints.

In hydrops articularis, which is regarded as the mildest, there is but a slight alteration in the structure of the synovial membrane, and the joint cavity is more or less distended with a clear synovial fluid. In hydrops articularis with a serofibrinous and catarrhal exudate, the pathological changes of the synovial membrane are more pronounced, the synovial fluid contains flocculent masses and there is a greater tendency of anchylosis. The third variety—the so-called empyema of the joint, which is more severe in type though less common, is the result of mixed infection of pyogenic organisms, as well as the gonorrheal, and is characterized by a puriform collection in the joint. The fourth variety, the phlegmonous, is the one that works the greatest ravages upon the joint structures, and is followed therefore by the greatest functional disturbances. Here there is disintegration and erosion of the articular cartilages, and infiltration and thickening of the other articular structures of the joint.

The preceding paragraphs chiefly describe the lesions with which we have to deal, and which must act as a guide in differentiating in our treatment.

Gonorrheal arthritis occurs as a complication of urethritis in from two to seven per cent. of the cases, according to various observers.

After reviewing the literature in about three thousand cases, I find that the statistics on symptomatology of cases reported by Dr. W. P. Northrup[1] of this city conform to those of other observers, with such exceptions as I have noted hereafter.

Sex.—Male, 230; female, 22.

Exceptions.—Bennecke's, male, 18; female, 38. Anvergnioli,[2] females, 111 cases. Davis Colley[3] claims it occurs as often in women as in men.

Age.—Ten to fifty years. Majority, twenty to thirty years equals 60 per cent. of 252 cases.

Dr. James Stewart, of Montreal, in his series of 48 cases (*Montreal Medical Journal*, 1890), reports a case at the age of sixty-nine years.

As to the frequency of gonorrheal arthritis in children, Dr. Kimball reports in the *Medical Record* of November, 1903: Out of 600 children admitted to the Babies' Hospital in one year, 70 had gonorrhea, 10 developed arthritis. Quoting from the above article, Dr. Kimball says: "Gonorrhea prevails among infants and children to an extent not fully appreciated by the medical profession at large, and has become a common epidemic in institutions when a number of children are placed together."

In this series of 252 cases, the knee was affected in 91. This corresponds to the experience of all observers; the knee being the joint most often affected. In 175 of these 252 cases, three or more joints were involved, showing that it is *not* to be regarded as a mono-articular disease.

1 Read before Section of Orthopedic Surgery, the New York Academy of Medicine, December 16, 1904.

1 Medical and Surgical Report of the Presbyterian Hospital, New York City, Vol. 1, 1896.

2 De la monoarthrite blennorrhagique chez la Femme, Thèse de Paris, 1890.

3 Guy's Hospital Report, London, 1883, 187 to 203.

As to the pain and tenderness in this affliction, 59 out of 193 cases are reported as severe. This is not in accordance with the literature on the subject, but in my own experience the pain seems more intense and continues longer than in any other form of arthritis, being more severe at night. The temperature varies from normal to 105° F., but is most frequently between 99° and 102° F. It is higher in children than in adults. The arthritis begins in some cases before the end of the first week, but generally after this, and lasts from two weeks to several months.

Of the various complications those of the eyes are most common. No doubt many cases of endocarditis and other complications are lost sight of by patients passing into the hands of other observers.

In making a prognosis in gonorrheal arthritis, we have the local condition and the constitutional infection to consider.

To illustrate this point I wish to cite two fatal cases that came under my personal observation, which demonstrate that the *primary* cause of various constitutional disturbances is often lost sight of in making a diagnosis.

Case I.—Male, thirty-seven years of age, a merchant, unmarried, gave a history of several attacks of gonorrhea, which he arrested with a favorite prescription. He consulted me on June 20, 1896, for an inflamed elbow-joint, which was acutely painful. I applied a removable plaster splint, used inunctions of Credé ointment and baked for twenty minutes in a dry air bath. Salol, quinine and iron were given internally. The arm was restored to normal function in three weeks. The end of August he consulted me about a trip to the Adirondacks for the benefit of his cough which he had had for several weeks and had been doctoring himself with proprietary mixtures. He remained three weeks at Saranac and on returning, although improved in appearance, he still retained his dry cough. After an examination, I made a diagnosis of endocarditis and stated to the patient that if it was due to gonorrheal infection, the prognosis was very serious.

During the winter and spring, he was treated by the writer and other physicians for his cough, temperature and night-sweats. In July he went to a summer resort on the coast, and had an attack of diarrhea. The doctor who was called in made a diagnosis of typhoid fever from dry cough, temperature and night-sweats. He remained in bed, under the care of nurses, for seven weeks. The symptoms remained the same, with the exception of the arrest of his diarrhea.

On returning to the city another physician was called, as he had expectorated some blood and looked emaciated. A diagnosis of miliary tuberculosis was made on the above symptoms and temperature, cough and night-sweats. Later, as some hemorrhagic spots appeared under his skin, the family requested me to see him again with the attending physician, but wishing to have my original diagnosis confirmed, I requested the family to call in consultation Drs. Janeway and Delafield. This was done and a diagnosis of septic endocarditis made. He died three weeks later.

I am of the opinion that this was undoubtedly a case of gonorrheal endocarditis, with the possible later invasion of other bacteria.

Case II.—Male, single, aged twenty-three years; merchant; having acquired gonorrhea during August, 1894; consulted a physician, but as his discharge did not disappear as rapidly as he desired, he used a very strong injection given him by a drug clerk. The discharge was arrested in twenty-four hours. Two days later, September 6, he called at my office with his wrist and hand swollen, temperature 102.5°F., and looking very ill. The hand was placed in a removable plaster splint, inunctions of Credé ointment applied. Salol, carbonate of guaiacol and quinine given internally. I baked his hand daily at 250° F. for twenty minutes and applied the ointment. At the end of three weeks the hand was normal in size and function. In October he developed a dry cough which I treated during the winter, and in January made a diagnosis of endocarditis. He had very little temperature, but occasional night-sweats.

In May his father consulted me on the advisability of sending him to the Adirondacks. I then told the father the true nature of his son's trouble and advised him to be taken to Long Branch with the family and placed in charge of Dr. Andrew H. Smith, in whose care he remained for the summer. His health failed and Dr. Smith and others giving an unfavorable prognosis, a prominent homeopathic physician was called who promised a cure. He was confined to his bed from December 1 until January 4, 1896, when he died.

This was also a septic endocarditis of gonorrheal origin.

Thayer,[1] Berg,[2] Siegheim,[3] Weichselbaum,[4] Desnos,[4] Schedly[4] and Fleury[4] have reported autopsies of gonorrheal endocarditis cases.

In considering the treatment of gonorrheal arthritis we recognize that the discharge from the genitals, or source of infection must be first arrested, to insure a quick result in the relief of the arthritis.

The internal use of the following drugs, (methylene blue, bal. copaiba, cubebs, oil sandalwood, carbonate creosote, carbonate of guaiacol, urotropin, bichloride of mercury, calomel, etc.), and the local use of solutions (protargol, bichloride of mercury, nitrate of silver, permanganate of zinc or potassium, hydrogen peroxide, acetate of lead, sulph. of zinc or lead, hydrastis, etc.), in varying strengths, which seem to yield the best results in the hands of the operator can be used.

In referring to the treatment of joints, I will take them up separately, hoping thus to make it more practicable.

1 Medical Record, 1897, page 407.
2 Medical Record, 1899.
3 Deutsche med. Wochenschrift, 1897, May 13.
4 Wood Medical and Surgical Monograph, 1889, page 302.

Foot and Ankle.—Dr. L. Vernon Jones, in his article on gonorrheal arthritis, speaks of one case of a young man traveling on the continent. He went to five different doctors in five different continental spas for his rheumatism, as he called it, of his feet and ankles. Not one of them inquired into the condition of his urethra and he, not thinking it worth while to mention it, came back, crippled and flatfooted for the rest of his life.

In gonorrheal arthritis involving the joints and ligaments of the foot, if it is not recognized at once, the ligaments are softened, the arch of the foot breaks down and the patient is hopelessly and permanently flatfooted.

Properly to treat this condition, the foot should be placed in a plaster-of-Paris boot (running nearly to the knee), well supporting the arch of the foot. It may be split down the center to allow for swelling and for local treatment, but the patient should not be allowed to put any weight upon it, as the main object is to retain the relation of the bones and prevent stretching of the weakened tendon and ligaments.

In several cases seen at the Bellevue Orthopedic Clinic, with Dr. Sayre, and in cases in private practice, I have used this method of support with local application of blue ointment, heat and electricity, and, later, used a metal spring to sustain the arch if necessary. This treatment has given permanent relief.

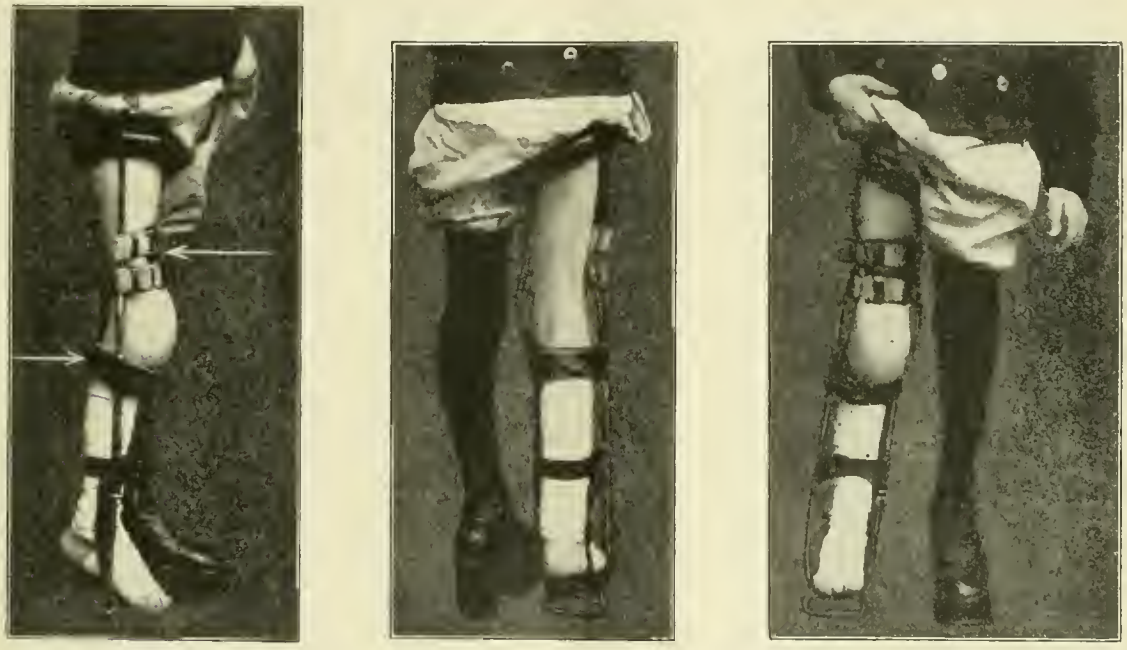
I think this condition is sometimes regarded as *weak foot*, the origin of the trouble being overlooked.

Bond regards pain and tenderness in the heels in walking as pathognomonic of gonorrheal arthritis.

Knee-joint.—In gonorrheal arthritis of the knee, which is the joint most frequently affected, when the effusion is in the synovial sac we have reports by Willard,[1] Christen,[2] O'Conor, John,[3] and other surgeons, of perfect results in function and the contour of the joint by free opening into the joint and irrigating with 1/5,000 bichloride of mercury or other antiseptic solutions.

In opening into the joint the skill and experience of the operator is a great factor, as death and anchylosis have followed this apparent simple surgical procedure.

All the cases seen by me have been in a subacute or chronic state, and, without giving the history of the cases in detail, I will speak of a method that has yielded good results in anchylosis and partial anchylosis of the knee-joint. The patient's knee has been exposed to dry heat at 250° F. for twenty to thirty minutes in a Betz baker; when removed, Credé ointment is rubbed over the whole surface of the joint, following this with the pulsating form of the direct continuous electric current of five milliampères for a period of from seven to ten minutes. After the galvanic current the ointment about the knee-joint is covered with oil silk and the leg encased in a movable plaster splint, or a knee traction splint. After this treatment of baking and electricity has been carried on for a week or more, massage and passive movement is added. In several cases treated by this particular method in the past four years, the patients have regained perfect function of the joint, after being anchylosed for from two months to three years.



Splint devised for extension and counterextension in chronic and phlegmonous knee-joints, by the author.

1 The Therapeutic Monthly, July, 1902.
2 Thèse de Paris, 1893.
3 The Lancet, 1899.

In Hip Joint Diseases.—The pain is intense in the acute stages. I think that the following case, which has some points of interest, will cover my idea of the care and treatment of gonorrheal arthritis of the hip.

Case III.—The patient, previous to my seeing him, had been seen by a prominent surgeon and an orthopedic surgeon, together with his family physician; owing to the intense pain and other symptoms a diagnosis of central myelitis of the upper third of the femur was made, and an amputation of the hip was decided upon. The patient refused to be operated upon and was made comfortable with large doses of morphine.

I saw him after the pain had subsided considerably, and I concluded his trouble was tuberculous. A Thomas splint was applied to keep the joint quiet, and, by means of a Buck's extension the joint was relieved, patient being confined to bed. Three weeks later he was placed on a long hip splint and permitted to go about. I learned on his first visit to the office through his history and urine examination, enough to make me regard his arthritis as gonorrheal. An X-ray by Caldwell showed no bone lesion. After wearing the splint nine months it was removed and massage and passive movement begun. The patient regained nearly the normal function of the joint. During this time galvanic electricity was used; also salol and urotropin internally.

Dr. Arthur L. Clute,[1] in an article on osteoarthritis of the spine due to urethritis, etc., says, "the pain is referred to the distribution of certain nerves arising from the lumbar and sacral plexus and probably is due to the presence of an inflammatory exudate about the spinal articular processes, which exudate exerts pressure on the nerve roots as they pass out between the lamina." This inflammatory condition may extend the full length of the spinal column.

For treatment a plaster jacket or other fixation apparatus should be used. The high frequency current relieves these pains and the galvanic current and Credé ointment should be used to promote absorption.

Ricord, Bergh, Struppi and Loeb regard gonorrheal arthritis as the result of posterior infection of the urethra. If this be the case, is it not possible that the general use of irrigation as a means of treating urethritis has increased the number of cases of posterior urethritis and secondly caused arthritis?

I am of the opinion that the use of all rheumatic remedies and restricted antirheumatic diet is injurious and contra-indicated.

In acute stage iodine should be painted over the joint, ice bags applied about the joint, a fixation splint to hold the joint immovable, with sufficient morphine internally to appease the pain. Cautery over the joint relieves the pain; also the high-frequency current. As a last resort, arthrotomy may be employed.

In the subacute and chronic stage the use of blue ointment, Credé ointment and liquid iodi comp., combined with the dry heat and galvanic electricity, as previously described, are of great value. All joints should be put at rest in plaster, as this makes the most easily applied and most perfect-fitting splint for all joints except the hip, which requires a Thomas or Sayre traction splint. In the phlegmonous joint, extension and counter-extension should be used. Further, I believe that urotropin, salol, carbonate of guaiacol, carbonate of creosote, quinine, are underestimated in their value for destroying gonococci found in the interior of the body.

Summarizing *some of the characteristic symptoms of gonorrheal arthritis*, I would mention: the characteristic intense pain and its increased severity at night, the peculiar outline of the joint, as it is more often complicated with inflammation of the tendon sheaths and bursæ than in articular rheumatism and other forms of arthritis. The arthritis being associated with some acute or chronic gonorrheal infection. The leucocyte count may aid in differential diagnosis and X-rays showing the ligaments and tendons, are also of great value.

In conclusion, I wish to say that if the same zeal is displayed in seeking for gonococci as a cause of arthritis as there is in looking for uric acid and urates, possibly more cases of gonorrheal arthritis will be found.

[1] Boston Medical and Surgical Journal, November 24, 1904.

A CASE OF SUDDEN DEATH IN A NEWLY BORN INFANT DUE TO SUPRARENAL APOPLEXY.

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Hemorrhage into the suprarenals is a condition usually occurring during the first week of life; it has been clinically subdivided into three varieties by Dr. Still:

1. Those cases in which death occurs from within a few hours to a few days after birth.

2. Those cases in which death occurs after an acute illness of two or three days' duration, and usually accompanied by a purpuric or bullous eruption, and in which the suprarenal lesion appears to be part of the disease itself.

3. Those cases in which it appears to be a complication of some disease, as for example, pneumonia, diphtheria, thrush, etc.

Etiology.—The causation of suprarenal hemorrhage is not clearly understood even at the present date; among the causes which may be mentioned are, leucemia, a hemorrhagic diathesis, the complication of some acute illness, such as pneumonia, diphtheria, etc., venous circulatory disturbances, degeneration or inflamation of vessel walls, Addison's disease, traumatism.

The infant in question was one of twins, the labor being a very difficult one; the history of the case was as follows: Mrs. X., primipara, aged thirty years; occupation housework; native of United States; month of gestation, tenth; meas-

urements of the pelvis were normal; abdomen was very large. The labor pains commenced at 3 P.M., February 2; with the commencement of the labor pains the membranes ruptured; the labor pains were very feeble in character, and by 8 P.M. of the same day had disappeared completely; dilatation from this time on took place due to the weight of the feti, and by 8 A.M., Feb. 3, the patient was fully dilated; vaginal examination showed a breech presenting, with a rounded mass (the head of the second child) somewhat further up in the pelvis. The first child was delivered by breech extraction at 9 A.M., February 3; during delivery the heads interlocked, but after manipulation the child was safely delivered; the weight of this child was six pounds three ounces. Upon reexamination the presentation and position of the second child was determined to be L. O. A., the body of the child occupying an oblique position as obtained through the abdominal wall; the mother was left alone during the next three hours; during this entire time there were no signs of any labor pains, and as the mother was getting weak, the uterus gradually assuming a bell shape, the head not engaged, it was deemed advisable to extract the child manually; a version was attempted unsuccessfully, high forceps were applied and the child delivered 12 M. February 3. The child made no attempt at spontaneous respiration; artificial respiration was resorted to, and had to be maintained for about an hour and a half before respirations were fully restored; the placenta was safely delivered spontaneously about two minutes after the birth of this child; the weight of the second child was seven pounds six ounces. Both children were again seen that evening, and everything was progressing normally. The nurse said that both children were alive and doing well at 4 A.M. At 5 A.M., February 4, she noticed that the child which was born last had stopped breathing and was apparently dead; she also noticed that it had not died from obstruction of the respiratory tract, as the child's face was not in the least cyanotic.

Autopsy Report.—Body that of a newly born infant, twenty-one inches long, weight, seven pounds six ounces; rigor mortis present, some slight discoloration in region of left temple, pupils equal, dilated, abdomen distended. The lungs were distended with air, crackled with pressure; cut section shows color pale, except at the right upper lobe, which was slightly congested; sections of the lung thrown into water float readily; on examination of the bronchi they show a slight amount of mucous secretion. The muscle walls of the heart were slightly pale in color, both the auricles and the ventricles were completely empty of blood, the right ventricle was slightly distended, the left ventricle contracted, foramen ovale closed. The intestines were distended with gas, and upon later examination showed no hemorrhagic areas whatsoever. The regions occupied by the liver were as follows: The right hypochondrium, the epigastric, a portion of the umbilical, and the left hypochondrium; the surface was mottled, colored; the capsule was smooth and showed a diffuse hemorrhagic discoloration beneath it; on section the liver showed a slight hemorrhagic discoloration, extending downward from the surface into the substance of the liver for about one-fourth of an inch; the lobules of the liver were easily seen, the blood-vessels were not distended, and the friability of the liver was normal. The spleen was normal. The right kidney showed no discolorations or changes whatever, being perfectly normal. The right suprarenal showed distinct hemorrhagic areas about the size of a dime beneath the capsule, one of these had raised the capsule; upon section a small amount of bloody fluid was discharged; the suprarenal structure in these areas was distinctly darker than that of the surrounding structures and of a bloody color, the consistency being greatly diminished as compared with that of the surrounding structures. The left suprarenal on its outer surface had an elevation of the capsule of about one quarter of an inch, the elevation being circular in outline, with a diameter of three quarters of an inch; upon section a quantity of fluid blood was discharged. The gland in this region showed an area of hemorrhagic discoloration, together with marked friability. Pancreas was normal. Meninges were somewhat congested, otherwise no change. Brain normal.

Microscopical Report of the Suprarenals.—There is a diffuse area of necrosis of the tissue substance of the suprarenals, involving both the cortical and the medullary regions, so that nearly all of this tissue had lost its characteristic appearance, together with a diffuse hemorrhagic infiltration throughout the glands of both sides. (For this microscopical report I am indebted to Dr. H. Oertel, who had taken considerable interest in this case.)

Dr. T. M. Prudden reports a case with sudden death at the fifth day; here, upon examination, was found an extensive hemorrhage about the right suprarenal gland, together with an infiltration of that gland, hemorrhagic in character. The kidney was normal. Northrup reports several cases, among which was one associated with incomplete septum ventriculosum, associated with thrush. Ganod and Drysdale report a case occurring at the fourth month. Anderson reports a case occurring at the fifteenth month, and this he thinks was due to an acute toxemia, probably infectious in character. Mater reports a case of suprarenal hemorrhage in the stillborn. Holt reports several cases, in one of which the capsule was distended nearly to the size of an orange.

Treatment of Cerebrospinal Meningitis.—In a timely article, H. LENHARTZ (*Münch. med. Woch.*, March 21, 1905) recommends daily lumbar puncture for cerebrospinal meningitis. The average amount to be removed should be 30 c.c. and should never exceed 50 c.c. A specially constructed manometer may be attached to the needle, and will avoid the withdrawal of too much fluid.

MEDICAL PROGRESS.

NEUROLOGY AND PSYCHIATRY.

Treatment of Purulent Cerebral Meningitis.—The question as to handling gunshot fractures of the skull is as yet debatable ground; some surgeons recommend expectant treatment, others insist on immediate surgical interference. It must be kept in mind that in many cases the extraction of the bullet is impossible, and débridement is not to be thought of, while there are surgeons who just on that score proceed with the enlargement of the wound so as to place it in as an aseptic condition as possible. Appel (*Roussky Vrach*, January 15, 1905) reports the recovery of a man of eighteen years who, in an attempt at suicide, produced a fracture in the right frontal region of the skull over the right brow, the shape of a triangle with the apex turned in; another fracture was noticed at the point of the bullet's exit. Operation elicited a fracture of both tables, and six fragments of the bone were extracted, together with the bullet greatly changed in shape. The dura was ruptured in one place. It was split open and an iodoform tampon inserted throughout the entire length of the wound between the dura and the arachnoid. On the sixth day after the operation there was marked protrusion of the brain substance, and the tampon was saturated with the cerebrospinal fluid. The protruded part of the brain substance was found to contain a fragment of the bone. Patient discharged cured in the seventh week, though there was a considerable discharge of a mucopurulent nature before the wound healed. Opening of the skull covered over with an epithelial membrane, but pulsating. The author thinks that once meningitis becomes established and operative interference is considered desirable, it should be proceeded with at once. It is of great importance to avoid a shock to the brain by the use of concussing instruments, as it was shown conclusively that after trephining the skull by such instruments a local circumscribed purulent meningitis was converted into a diffuse meningitis.

Early Symptoms of Insular Sclerosis.—It is important that this rather neglected but too widely disseminated disease should be brought constantly before the observations of the general practitioner. E. Hobhouse (*Lancet*, February 18, 1905) states that there are three good reasons why insular sclerosis is of great importance from the general medical standpoint: (1) He says it is by a considerable margin commonest of all the chronic diseases of the central nervous system; (2) because owing to the great diversity of its symptoms it may come first in its early stages under the notice of any man whatever branch of medicine he may practice. (3) It is by no means easy to recognize in the early stages, being frequently confounded with hysteria. It is of the very greatest importance obviously to make the diagnosis as early as possible, in order, on the one hand, to save a patient suffering from a hopeless central nervous disease, from being treated as a good-for-nothing hysterical fool, and on the other, to prevent a truly hysterical case from lapsing into chronic invalidism. In the experience of the author, it is the first of these two events which more frequently happens. In the out-patients service of the writer the average frequency of cases of insular sclerosis has been about two per thousand. This is a higher rate in the same 5,000 cases observed, than was noted in paralysis agitans, locomotor, cerebral tumor and general paralysis. Many cases of insular sclerosis are missed. This is due to the fact that most of us were brought up on Charcot's classical picture, which he separated with others from the neurological mud heap. In the opinion of the author, the majority of cases begin in one or two or three different ways. There may be weakness in the legs; there may be ocular symptoms as in tabes. In some cases these may antedate the other symptoms by as much as six years. There may be some form of loss of power or disturbance of sensation in almost any portion of the body. Menorrhagia may not infrequently be an early symptom. Tinnitus is also not an uncommon early sign. It becomes obvious therefore that there may be great difficulty in designating insular sclerosis from hysteria. Buzzard has pointed out the chief criterion from which this differential diagnosis must be made. He says: Until the typical symptoms make their appearance about which doubt has existed, I do not think we can as a rule safely pronounce the diagnosis as insular sclerosis. If, however, paresis has occurred in one or more limbs, with spontaneous recovery and repeated recurrence together with amblopia, my experience would lead me to diagnose insular sclerosis. Babinski's toe phenomenon has never been found present, except in insular sclerosis. The author concludes that the slower the onset of symptoms, the more hopeful is the prognosis as to remissions and the less likely is any given attack to be finally crippling to mind or body. The fact that the earliest symptoms are cerebral does not necessarily imply that these will be specially predominant later. In both the last cases, ocular symptoms came first, but the brain and upper cord are comparatively little affected, while the paraplegic symptoms have been prominent for some years.

Sensory and Motor Role of the Optic Thalamus.—The researches of W. v. Bechterew (*Monatsheft f. Psychiat. und Neurol.*, March, 1905) have shown that besides its sensory functions the optic thalamus comes into relation with motor phenomena in the body. This part of the brain is concerned in the production of the involuntary motions of expression and mimicry, as well as a long series of vegetative functions. This motor function of the thalamus is chiefly localized in its medial nucleus.

The Transmissibility of Tabes.—There are scant data concerned with the fecundity of tabetics, according to M. Milian (*Rev. Mens. des Mal. de L'Enf.*, March, 1905). It appears that their procreative power is diminished, the proportion of childless households among tabetics being very large. Since the same is true of syphilitics it is possible that such sterility may be the result of syphilis rather than of tabes. The same observation may apply to the great mortality of the children of tabetics. Most of the cases published of hereditary tabs are really cases of Friedreich's disease. There are undoubtedly cases of hereditary tabes, but their number is so small as to be negligible. The small proportion of cases of juvenile tabes, the issue of tabetic parents, when compared to the larger number of cases the issue of syphilitic parents, suggests that hereditary syphilis is the direct cause of juvenile tabes. A large proportion of the offspring of individuals affected with locomotor ataxia are affected with nervous disorders. Tabes cannot be blamed as being the cause of these, for heredo-syphilis creates the same predispositions and nervous accidents. Moreover, in tabetic households children born before the parent, or parents, have contracted syphilis and tabes have the same tendency to nervous disease

Landry's Paralysis.—Theodore Diller and C. L. Billard (*Amer. Med.*, April 8, 1905) report two cases, one terminating in recovery the other in death. In the first case, that of a young man of seventeen, the main

features were rapidly ascending motor paralysis which involved the legs, trunk, arms, diaphragm, and which by the end of twenty-four hours was almost complete, with partial involvement of neck muscles; later tenderness in the calves and pains in the back, incontinence of urine; maximum of disease reached in four days; absence of fever or mental disturbance; beginning of subsidence of symptoms on the eighth day after onset and after the symptoms had been at their maximum for four days, followed by a steady and uninterrupted recovery. The muscles of the legs which were first paralyzed were latest in recovering power. The second case which terminated fatally is noteworthy because it was the patient's second attack of acute ascending paralysis, he having recovered from a similar although milder attack two years before. No facts of any significance were revealed in a search for the etiology of these attacks.

PEDIATRICS.

Acute Articular Rheumatism in Children.—Although comparatively rare in the child, Shengalidze (*Rousky Vrach*, February 18, 1905) enumerates quite a goodly number of authors who reported cases of rheumatism in the very young. It is possible to admit that the disease is transmitted with the milk of the sick nurse. The incubation period in such cases is at least four days, the duration of the disease between two and four weeks; both the duration and the severity of the disease are less in infants as compared with adults. In the former it may run its course without any complications, while in older children endocardial and pericardial complications, as well as implication of the pleura and of the nervous system (chorea) are of frequent occurrence. This has been reported by Baudelocque, Rillet and Barthez and others. Picot found 50 per cent. of his cases complicated with pericarditis, while Roger asserts positively that every rheumatic child's heart is bound to be attacked sooner or later. The author observed in his case a rather rare complication in the form of an effusion with the maxillary joint.

Prodromal Rashes of Measles.—The varieties of these rashes may be as follows: (1) Isolated macules; (2) Blotchy erythema; (3) Isolated papules; (4) Urticaria; (5) Scarlatina form rash; (6) Circinate erythema. J. D. Rolleston (*Brit. Med. Jour.*, February 4, 1905) states the general characteristics of prodromal rashes to be as follows: (1) They appear usually within the first two days of the disease. Frequently they precede the catarrhal symptoms, Koplik's spots and the characteristic stomatitis. Occasionally they may be seen before any rise of temperature. (2) The short lived existence of most of these rashes serves in part to account for the scanty attention they have received. Some indeed are less fugitive than others. Urticaria and blotchy erythema for example, lasting only a few hours, while the scarlatina from eruptions frequently persist for twenty-four hours. Even the scarlet fever-like rashes, which are more widely diffused than the rest, seldom occupy the same extent as the fully developed eruption of scarlet fever, to which they bear as a rule a faint and abortive resemblance. (4) The prodromal rashes of measles do not affect any special situation. (5) The appearance of several varieties of eruptions simultaneously is highly characteristic. Accidental eruptions are by no means unknown in the other acute exanthemata, but coexist or follow, instead of preceding the specific efflorescence. (6) The characteristic eruption in measles is occasionally attended with irritation. The prodromal eruption of measles is strikingly free from any symptoms of the kind. There is no pain or pruritus, nor any subsequent desquamation. (7) Initial rashes in measles appear to be no aid in prognosis. The course of the disease in which they were noted in no way differ from that followed in the cases where they were absent. (8) The occurrence of rashes such as enumerated in an epidemic focus should alone arouse suspicion of infection and prompt examination of the buccal mucosa for Koplik's spots and the characteristic stomatitis followed by a close watch for catarrhal symptoms will enable the practitioner to be certain of an early diagnosis.

Lymph Node Tuberculosis during Childhood.—The question of the routes along which tuberculous invasion of the system may occur is still *sub judice*. The study of abundant clinical material at his disposal by F. Harbitz (*Jour. of Infect. Dis.*, March 1, 1905) leads him to the conclusion that primary tuberculosis of lymph nodes is quite frequent in adults; that besides in the thorax tuberculosis is quite often primary in the abdomen and especially in the cervical nodes. Not seldom it is found generally distributed and it often extends from one place to another, during years or dozens of years, so that finally a great portion of the lymph node system has been attacked by tuberculosis. Tubercle bacilli may remain latent in the lymph nodes of children for a long time. The duration of latency may be placed at twenty to thirty years. The term latency is used so as to comprise both cases of well-encapsulated old tuberculous foci (virulent or non-virulent) in lymph nodes, and the not less important latent chronic affections of lymph nodes in which the tuberculosis has made its way from one place to another in the course of many years. As the result of his observations, the author concludes that in adults as well as children, pulmonary tuberculosis may be, and often is, secondary to tuberculous foci in other organs, mainly in the lymph nodes, and the infection of the lungs occurs most likely by way of the blood (from the thoracic nodes the infection might also easily occur through the lymphatics). He also believes that much more stress must be laid upon primary infection through the digestive tract, and not least on infection through the throat, than has been done formerly.

Congenital Lesions of the Diaphragm in Newborn Children.—Hernia of the diaphragm is not one of the rarities of medicine, according to A. Mori (*Brit. Jour. of Children's Dis.*, March, 1905), who reports three cases. The first case at autopsy showed in the left pleural cavity numerous coils of large and small intestine, not covered by peritoneum. The left lung was atrophic, and the heart was displaced to the right. The patient had died after a few feeble inspiratory movements. The second case died after a few vain efforts at respiration, and necropsy disclosed a wide fissure on the right side of the diaphragm, through which a portion of the right lobe of the liver and some coils of the large and small intestine had penetrated into the thorax and compassed the lungs. The third case was born in a condition of asphyxia and died after the usual means of overcoming this had been resorted to for half an hour. The left pleural cavity was found to be filled with coils of small intestine and transverse colon. In all these cases there was polyhydraminos and an enormous enlargement of the liver. The prevailing theory of the origin of diaphragmatic hernia is that it is the result of an incomplete closure of the diaphragm. The researches of the author, however, lead him to believe that this condition represents a lesion of the diaphragm consequent to increased intra-abdominal pressure, caused by a considerable increase in volume and weight of the liver. This enlargement

is the result of circulatory and parenchymatous alterations in that organ, frequently of syphilitic origin. An additional factor is an enormous development of the intestines, which may be filled with an accumulation of meconium. The fetal diaphragm is weak, formed of thin tracts of pleural and peritoneal serous membrane with interposed muscular fibers. Other contributing causes are the tendinous arch that gives passage to the aorta, the esophageal and inferior vena-caval aperture; and the sharp left lobe of the liver having a tendency to break through the diaphragm.

PATHOLOGY AND BACTERIOLOGY.

Cell-Inclusions in Variola.—The structures described by Bosc and Councilman as protozoa, have been found in every case of smallpox studied by P. Schrumpf (*Virchow's Archiv.*, Vol. 179, No. 3). The pustula of variola is caused by the irregular proliferation of the epithelial cells of the stratum Malpighi, followed by central necrosis, the formation of fibrin, and invasion of cocci. A section vertical to the pustule will disclose three zones: proliferated cells, enlarged cells with vacuoles and indistinct borders, and lastly, a central network filled with disintegrated cells, fibrin, chromatin and cocci. In the external zone may be found the earliest (extranuclear) stage of the supposed parasite, which has been also described in vaccinia. The middle zone contains the more complicated, intranuclear manifestations, while the central zone is free. The extranuclear forms are usually small, round, oval or semilunar and surrounded by a lighter areola; they usually take the same stain as the chromatin granules of the nucleus. The resemblance to parasites with cell-body and nucleus is certainly very great, yet it is more plausible to regard them as dislodged portions of nuclear chromatin. The areola is certainly not an artifact, since it may also be observed in fresh specimens; it is probably due to vacuolization of the cell-protoplasm, secondary to retraction. Some chemical changes have probably taken place, since with specific stains these granules do not take the same hue as the nucleus. The varying shape, number and position of these inclusions give rise to the most manifold pictures, which have been erroneously interpreted as various stages in the development of the parasite. Other forms are no doubt derived from the protoplasm of the cell, since they stain like this. The intranuclear inclusions appear as dark-red or violet granules in the blue nucleus, sometimes with a light central area and quite regularly surrounded by an areola. Then formation is probably the same as with the extranuclear forms: The degenerated chromatin collects in large or small clumps, thus giving rise to a small vacuole filled with nuclear fluid. Similar structures have been found in the desquamated epithelial cells of the bladder, where no cystitis or ureteritis was present. If the contents of a smallpox pustule be passed through a Chamberland filter, the filtrate will be just as virulent as before. The supposed parasites are, however, too large to pass through such a filter. Another fact that speaks against the parasitic theory is the absence of parasites or spores in the blood.

Parasitic Organisms in Tumors.—No matter how the so-called cancer parasites are interpreted, there can be no doubt that they occur most frequently in glandular carcinomata and hardly ever in other pathological conditions or in health. L Blum (*Virchow's Archiv.*, Vol. 179, No. 3) does not believe that they are really parasites, yet states that an explanation for their exclusive occurrence in carcinoma cannot yet be given. The material to be examined should be absolutely fresh, and special stains are necessary. There is no relation between the number of inclusions and the malignancy of the growth, and the periphery, where one would expect to find most, if they were parasites, is usually free. The structure and shape are fairly constant, unlike the usual manifestations of cellular degeneration, yet the arguments which form the foundation of the parasitic theory are inadequate at this date to be convincing.

Protozoa of Scarlet Fever.—The recently discovered protozoa of scarlet fever may be easily demonstrated, according to C. W. Duval (*Virchow's Archiv.*, Vol. 179, No. 3) by irritating the skin for two to five minutes with a piece of cotton saturated with strong water of ammonia. After five to six more minutes, a vesicle will form, which under normal conditions will contain straw-colored serum without leucocytes or red blood-cells. In scarlet fever, however, the serum will show many structures which closely resemble the "cyclaster scarlatinalis" described by Mallory. The fact that they possess a definite structure, shape, and staining reaction, and that fifty or more may be found in a single drop of serum, makes it more than likely that they are not products of degeneration, but protozoa. A complete cycle may be traced, from small forms to rosettes and ameboid types. Degenerated bits of protoplasm may also be found in the serum, but differ considerably in appearance and staining. A certain similarity to the malarial plasmodium may often be found, in that the rosette breaks up into individual segments. The same structures were also found at autopsy in the skin.

PHYSIOLOGY.

Enterokinase and Trypsin.—An experimental investigation of the inter-relationship of these two substances has been conducted by W. M. Bayliss and E. H. Starling (*Jour. of Physiol.*, February 28, 1905). According to Pawlow enterokinase is a ferment, and acts on the trypsinogen in the pancreatic juice, converting this into a third substance, trypsin. This interaction has, however, been regarded by Délézenne and Dastre as analogous to that which takes place between amboceptor and complement, the action of the enterokinase being to link the trypsinogen on to the proteid molecule. The authors' experiments are not favorable to this view. Normal rabbit's serum, besides its own antitryptic qualities, may sometimes possess the power of neutralizing or destroying enterokinase. This power when absent may be always evoked by the repeated injection of solutions of enterokinase either subcutaneously or intraperitoneally. The production of an "antikinase" in the serum does not increase the antitryptic powers of the latter. Injections of trypsinogen subcutaneously do not give rise to the production of any "antitrypsinogen" in the blood serum. The antitryptic qualities of blood serum are therefore not due to the presence of antikinase. There is no evidence to show that a solution of trypsin is equivalent to a combination of kinase and trypsinogen. Trypsin is a new substance, differing from trypsinogen, and produced from the latter by the ferment-like action of enterokinase. There is no evidence that the enterokinase is essential to or takes any part in the proteolytic activities of trypsin.

The Influence of the Thyroid on Autolysis.—That the thyroid gland has a marked influence on metabolism, is a doctrine which is firmly established in the knowledge of the physiology of the ductless glands. S. B. Schryver (*Jour. of Physiol.*, February 28, 1905) studied the effect of the administration of thyroids upon the rate of autolysis of the tissues. He found that in every cat experimented upon in this way, the liver showed after twenty-

four hours an increased autolysis. The thyroid gland seems to exert a specific action on the proteids of the tissues. In comparing the effects of the administration of the thyroid with those of the administration of phosphorus, the author notes that in both cases there is a degradation of proteid matter. In the case of thyroid administration there is an elimination of fat, in that of phosphorus poisoning a fatty degeneration, or rather, a fatty infiltration. But with thyroid feeding there is increased oxidation, whereas in phosphorus poisoning the oxidation is diminished. These results might suggest that the proteid degradation is a preliminary process in the utilization of fat, and that, after elimination of certain nitrogenous groups, the fat wanders from the other tissues into the liver, a fatty side-chain replacing possibly a nitrogenous side-chain. In the case of thyroid feeding, with the accompanying excessive oxidation, the fat is burned up, whereas in the case of phosphorus poisoning, with its diminished oxidation, the fat accumulates and gives the organ the characteristic appearance of fatty degeneration.

The Action of Chloroform Upon the Blood-Vessels of the Bowel and Kidney—The action of chloroform in the blood in such quantities as may occur with the inhalation of one to three per cent. vapor is to directly paralyze the neuromuscular mechanism of the blood-vessels of the kidney and bowel, and that a considerable part of the fall in blood-pressure which is constantly associated with the administration of chloroform may be accounted for in this manner. This is the conclusion derived from the experiments of E. H. EMBLEY and C. J. MARTIN (*Jour. of Physiol.*, February 28, 1905).

A Physicochemical Theory of Fertilization.—Starting out with the modern conception that protoplasm is a mixture of colloidal solutions, MARTIN H. FISCHER and W. OSWALD (*Pflüger's Archiv.*, Feb. 1, 1905) believe that the process of fertilization may be explained by reference to the properties and behavior of colloidal solutions. The colloids exist in two forms: the so-called soluble state, or sols, and the insoluble state, or gels. The conditions of clotting, curdling and rigor belong to the latter state. The sols are substantially the same as suspensions. It has been found that the gels have a fibrillar structure in whose meshes a fluid is found. It is possible to change sols into gels by changing the relative positions of the suspended particles more particularly by a closer approximation of the particles, which form a fine network. On raising the temperature some sols are changed into gels, *e.g.*, egg-albumin; other sols are changed into gels by lowering the temperature, *e.g.*, gelatine. Some colloids can exist in the sol condition only within certain limits of concentration. Another method of transforming sols into gels is by the addition of small quantities of certain salts. The coagulating power of the latter depends upon the valency of their ions increasing as this increases. Acids and alkalies also transform sols into gels. Non-electrolytes such as alcohol, ether, and chloroform also have this power. Moreover, one colloid may coagulate another. By merely mechanically shaking certain colloids these are coagulated. The authors mention the following as being the different methods by which the ovum may be fertilized: (1) Natural fertilization (both egg and sperm necessary). (*a*) Normal egg and normal sperm; (*b*) normal egg and immature sperm; (*c*) non-nucleated egg and normal sperm; (*d*) polyspermia. (2) Parthenogenesis (egg without sperm). (*a*) So-called natural parthenogenesis, really associated with rise of temperature, freezing, drying, etc.; (*b*) artificial parthenogenesis, A by means of abstraction of water; osmotic fertilization by means of electrolytes and non-electrolytes; B by means of specific chemical methods, such as salts, acids, alkalies, alcohol, ether, chloroform, alkaloids and colloids, etc.; C by changes of temperature; D by means of mechanical agitation, brushing, spraying, etc. Most definitions of fertilization are concerned merely with the morphological aspect of this process. Physiologically regarded, the spermatozoon is a substance which, in the first place, permits the development of the egg, and, in the second place, transfers to it the male characters. A few minutes after the head and neck of the spermatozoon have penetrated the ovum, a light spot appears in the large, from which spot the protoplasmic granules arrange themselves in radial lines. In the neighborhood of this spot is the head of the spermatozoon. This phenomenon of radiation is known as the astrosphere and is not an artifact. The formation of the astrosphere takes place also in the various cases of natural and artificial parthenogenesis. The conclusion drawn from these facts is that the formation of the astrosphere is the substantial morphological basis of fertilization. The authors find that with hardly a single exception all those agents that transform sols into gels are capable of bringing about fertilization of the egg. Natural as well as artificial parthenogenesis consists in the formation of an astrosphere by means of a transformation of hydrosols in the protoplasm into hydrogels.

The Synthesis of Uric Acid in the Organism.—It has been shown that various tissue extracts, particularly those of the liver and spleen, contain an oxidase capable of bringing about the conversion of hypoxanthin and xanthin into uric acid. R. BURIAU (*Hoppe-Seyler's Ztsch.*, Feb. 11, 1905) studied the action of this hypoxanthin oxidase with care, using extracts obtained from the liver of the ox. He found that in the absence of oxygen this conversion cannot take place. Uric acid may be formed from free or combined purin—bases present in the liver—extract. The latter also has the capacity of again decomposing the uric-acid that has been formed. Apart from this oxidative formation of uric acid in the liver, there is no other synthesis of this substance in the liver. The muscles also take a large share in the production of uric acid. During rest the muscles, by means of hypoxanthin-oxidase, change the stored-up hypoxanthin into uric acid and deliver it to the blood. Since one can never detect uric acid in the muscles, this conversion can only take place just as the hypoxanthin is passing from the muscle-fiber into the surrounding lymph. A part of the uric acid is again changed into hypoxanthin. The quantity of hypoxanthin in the muscle remains constant, in spite of the formation of uric acid; hence there is a constant formation of new hypoxanthin in the muscle. This production of hypoxanthin is increased while the muscle is at work. At the same time the amount of purin-bases leaving the muscle is also increased. The fact that hypoxanthin, under this condition, leaves the muscle without being changed into uric acid is probably explained by the fact that the xanthin-oxidase cannot act well on account of poverty of oxygen.

The Effect of Stimulating Two Areas of the Cerebrum.—By means of simultaneous electrical stimulation of two distinct zones of the dog's cerebrum, A. BAER (*Pflüger's Archiv*, Feb. 22, 1905) was able to study certain interesting phenomena that illustrates the extreme complexity of cerebral processes. Thus, certain so-called "inexcitable" areas of the cortex may be rendered excitable by stimulation of another excitable area, either at the same time or a little while before, with a constant current. The conclusion follows

that there can be no sharp line of division between excitable and non-excitable areas. There are points of maximum excitability in the motor region, but it is possible, under favorable conditions, one may obtain muscular contractions by stimulating certain parts of the sensory zone. It is also possible to inhibit the effect produced by stimulating a part of the motor areas by means of a simultaneous stimulation of another zone. The fact that all parts of the cerebral cortex may cause contractions in voluntary muscles suggests that all these parts are connected by a very fine and extensive network of fibers. The question arises, How is it possible that stimulation of one part of this closely interconnected network causes activity in only one part of this maze, while all other parts are not affected? This question can not yet be answered in view of the paucity of data.

Acapnea Produced by Injections of Soda into the Blood.—If there be injected into the blood a substance capable of uniting with carbonic acid, according to A. Mosso (*Arch. Ital. de Biol.*, Jan. 28, 1905), the movements of respiration cease without any marked changes in the functions of the heart and nervous system. The author has already described a condition of diminution of the carbonic acid in the blood resulting from a lowered barometric pressure, and to this condition he has given the name "acapnea." He now finds that there is a close connection between acapnea and apnea (cessation of breathing), and that carbonic acid has a preponderating influence in evoking the movements of breathing. By injecting large doses of sodium hydroxide into the blood of dogs, the author observed a total arrest of breathing that sometimes lasts as much as three minutes. The more profoundly asleep the animal is the longer the cessation of respiration lasts.

The injection of soda also produces the interesting phenomenon of periodic breathing, which is characteristic of acapnea; that is, there are regular pauses of arrested respiration which may have the character of Cheyne-Stokes respiration. This result is of great importance in connection with the changes in breathing that take place at high altitudes. Independently of the diminution of oxygen it suffices that the tension of carbonic acid in the blood should be lessened in order to so affect the nerve centers as to bring about periodic breathing. The arrests of respiration produced by injections of sodium hydroxide are the longest that have yet been observed. The experiments show that it is the presence of carbonic acid in the blood rather than the absence of oxygen, that provides the chemical stimulus which sets the mechanism of respiration in motion. This view is not novel, but the author's results are not without considerable theoretical interest as bearing on this problem.

A Contribution to the Physiology of Glycogen.—A study of the quantitative relations of glycogen in embryonal tissues was made by W. Adamoff (*Zeitsch. f. Biol.*, Vol. xlvi, N. S., Vol. xxviii). Chickens that have just been hatched contain glycogen in only a very faint amount. After the fourth day of life, when they have used up the glycogen which they obtained from the egg, and when they are fed, the glycogen content increases. New-born rabbits, in contradistinction to the adults, have a small quantity of glycogen in their tissues. The human fetal liver contains no more glycogen than that of an adult animal. These results show that richness in glycogen is not one of the characteristics of fetal tissues. Energy of growth and glycogenic content stand in no causative relation whatsoever.

PRESCRIPTION HINTS.

Mode of Using Analgesics in Migraine.—M. H. Vincent (*Jour. de Méd.*, April 16, 1905) states that in many cases in which analgesics are badly borne at the onset of migraine, very favorable results are obtained if the alimentary tract is first quieted. In the paroxysmal attack of a neurasthenic who awakes in the morning with an aura and attendant symptoms after having slept badly, the first care is to eat nothing, otherwise indigestion is brought on which renders therapeusis impossible. Take at once the following powder:

℞ Bicarbonate of soda .....gr. i
Carbonate of lime .....gr. v
Hydrated magnesium .....gr. ii
Bismuth subnitrate .....gr. ¼
Powdered opium .....gr. $^1/_{100}$-$^1/_{20}$
Powdered belladonna.....gr. $^1/_{50}$-$^1/_{20}$

M.

At the end of an hour the following powder is given:

℞ Carbonate of lime .....gr. ii
Magnesia .....gr. i

M.

To this last powder M. Albut Robin adds five or six drops of the following:

℞ Picrotoxin .....gr. $^1/_{20}$

Alcohol (90 per cent.) enough to dissolve, or the same amount of the following solution, taking care not to use more than twenty-five drops in twenty-four hours:

℞ Atropine sulphate .....gr. $^1/_{100}$
Morphine hydrochlor. .....gr. $^1/_{20}$
Ergotine .....gr. i
Syrup of wild cherry .....℥ ss

Filter.

At the end of two hours the process is repeated, giving with the last powder fifty grains of pyramidon. Towards two o'clock the patient, if hungry, may take teaspoonful of milk, clear or flavored, with coffee. If the malaise has not gone the first powder may be repeated or if there is headache give gr. xxv of pyramidon. In about all cases the symptoms have disappeared by this time and it is possible to give nourishment. It is better now to give a teaspoonful of soup every ten minutes, than to feed too sparingly. The principle of treatment is never to give an analgesic on an irritated stomach, and to administer something to take up the acid and a sedative remedy at the same time. In those cases of migraine afflicted with abnormal fermentation and stasis one finds the digestion retarded on account of a contracted pylorus or a reflex attack caused by food leaving the stomach in a state of greater or less irritation by reason of its prolonged stay here.

In case the stomach is found full the first powder mentioned is given to allay the irritability of the organ. If the headache lasts more than an hour gr. xxv pyramidon is given and nothing further is necessary. These attacks, due to fermentation, yield much more readily to treatment than those due to a purely nervous element. About midday give eggs, farina, or something of that nature, but no milk. In these gastric attacks, among others pyramidon will be found a very powerful and reliable analgesic, care always being taken to prevent the local irritant action which they are likely to cause.

The Medical News.

A WEEKLY JOURNAL

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SATURDAY, MAY 13, 1905.

SUNSHINE OR MOONSHINE! WHICH?

It is regrettable that whenever a new chemical or physical agent hints at a possible therapeutic utility, a certain element of the lay press, with almost malignant avidity, proceeds to inflame the public mind with professedly serious accounts of the marvelous results obtained.

These sporadic outbreaks as a general rule do much harm, and it not infrequently requires much time and effort on the part of the profession to properly direct and inform the lay mind. But in the much discussed matter of the therapeutic possibilities of fluorescing substances the profession has been more to blame than the reporters.

Fluorescence is the property possessed by some substances of absorbing etheric vibrations of a given wave length and in turn giving forth vibrations of another wave length. In other words, it is the quality of transforming wave lengths. It has been proposed to introduce such a substance into the blood of a subject, and then to excite the blood with X-rays or Becquerel rays from radium, when the transformation of wave lengths are claimed to take place.

In the first place, according to Stokes's law, the presence of fluorescence is, with a few insignificant exceptions, one of transforming a lesser into a greater wave length. But it is well known that the chemical activity of radiant energy varies inversely as the wave length, and that therefore the rays given out by a fluorescent substance will be of lesser activity than the rays absorbed, as they are of greater wave length than the latter. It becomes at once obvious that the rays which penetrate the tissues to set up the fluorescence must be more energetic than the fluorescent rays induced, and hence the reason for the production of the latter vanishes.

It has been ingeniously suggested that by rendering the blood luminous by fluorescence, "sunshine" might be introduced into parts of the body by the blood stream, where otherwise sunlight would never penetrate. If this were true, there would indeed be cause for alarm. The action of light is invariably destructive; every therapeutic benefit of light has been directly due to its power of irritation. The effects of light irritation of the lining membranes of the smaller brain vessels can better be imagined than described. The foolishness of producing liquid sunshine within the body is, among other things, convincingly shown in Major Woodruff's book on the effects of tropical light on white men. It is utterly illogical and fatuous.

But the most interesting observation on this perplexing question has been made by Dr. Piffard (Medical News, April 29, 1905), who had the unkindness to question whether the production of fluorescence in the blood by means of X-rays were a possibility. By a few simple experiments, consisting of trial and error, he has demonstrated that fluorescein and the other substances conspicuous in connection with this latest discovery, *do not fluoresce at all* to the X-rays or to radium outside of the body, and that therefore it is scarcely logical to assume that they will inside the body.

So at one fell swoop the disguise of "liquid sunshine" is torn off, and it stands forth revealed as naked "moonshine."

THE ADAMS-STOKES SYNDROME.

The extreme value of a close relationship between the clinic and the collateral scientific departments of medicine is well illustrated by the results of the recent investigations into the pathology of the Adams-Stokes syndrome, by Dr. Erlanger of the department on Physiology of the Johns Hopkins University.

One of the most notable symptoms of this complex, it will be recalled, is the marked bradycardia, which is permanent and often extreme, the pulse-rate falling to thirty or twenty beats per minute, or even to ten or five. It was early recognized that this diminished pulse-rate was not only apparent, but real, so far as the ventricular action of the heart is concerned. But it was not known previous to Erlanger's work that there was a lack of synchronism in these cases between auricular and ventricular rate. This, however, was conclusively shown by means of cardiograms and tracings obtained from the jugular vein of a patient afflicted with the disease in question.

As the only muscular connection between the atrium and the ventricle is effected by means of a small muscle bundle, the existence of which had only shortly before been established by His, Humblet and Retzer, Erlanger concluded that a "block" in this bundle must be responsible for the anomalous heart action in the Adams-Stokes complex. The correctness of this surmise he satisfactorily demonstrated by animal experiments. By means of an ingeniously constructed clamp he could study the results of direct compression of the muscle bundle in question. When this was moderate, he obtained a partial block, manifested by a disturbance of the auriculoventricular rhythm, such that the ratio between the auricular and ventricular contraction became as 2:1, and on further compression as 3:1. Ultimately a complete block was established, in which every relation between the action of the two portions of the heart was interrupted. The injection of atropine at this point produced no effect whatever on the ventricle, while it increased the frequency of the auricular beat. Stimulation of the vagus similarly was without effect upon the ventricle, while its inhibitory action upon the auricle was unimpaired; in partial block, on the other hand, there was also inhibition of the ventricle.

These experiments seem to clear one of the most obscure phases in a fortunately rather rare disease, and reflect a great deal of credit upon the laboratory from which they have emanated and upon the ingenuity of Dr. Erlanger.

KIN TALYEN.

Certainly no one, particularly the Russians, can question the energy or the progressive qualities of the Japanese. What the peculiar vim and push which seems characteristic of them as a nation depends upon has long been a mooted question. Assuredly it was not, as the recent Russian reverses can testify, anything that was brewed in a samovar; nor yet does it appear to have been the first fruits of those that slept steeped in *vodka*. Even the diabolical "saki," that national rice-begotten drink and stimulant of the Mongolian races, did not seem to have the strength necessary to vivify the inert Chinese, even when exhibited in large doses, so that it is with a certain feeling of relief that we accept the explanation of our latest and most esteemed contemporary, the *Sanitary Journal of Tokyo*.

The *Sanitary Journal*, it seems, is "devoted to the advancement of the pleasure and happiness of home and society" and is published at 19 Ikenohata, Naka Chow, Shitaya, Tokyo. It is a four-page paper, elegantly and chastely printed in black and red, in Chinese characters that smack of oriental tea-box-ism, and is full of interesting reading matter, no doubt. Only one article, however, appears in English, which we take a paternal pleasure in copying:

"Our store was founded 300 years ago, just when Tokyo has come to exist as a city. We sell all kinds of medicine and drugs, as well as "Kin Talyen," the first discoverer of which is our ancestor; it is especially effectual as stimulant and febrifuge, and has good reputation throughout the country. As Japan is going to have a world-wide name, it is our earnest desire to make our business the world-wide one, and to import the special, toilet, spirits, and provisions. If there is any person or firm in Europe or America that desires to have a good sale of those articles above mentioned, in Japan, give us a notice; we will work as his or their agent on reasonable terms and propagate the sale for him or them, advertising on the *Sanitary Journal* and other vernacular periodicals.—Kwangaku Rxow Drug Store, No. 19 Ikenohata, Naka Chow, Shitaya, Tokyo, Japan. Proprietor, Shiba Daisuke, the Sixteenth Successor."

Surely no one can refuse a helping hand to this worthy successor to the ambitious drug store at 19 Ikenohata, Naka Chow, which, by the way, is the home of our valued contemporary, the *Sanitary Journal*. If our seventh sons of seventh sons, our natural bone-setters and our faith-healers are seeking a foreign *clientele*, what better opportunity could they have of propagating their practice than by the insertion of a professional card in the picturesque red and black columns of this enterprising vernacular periodical?

We hope, also, that the drug trade of America will give him a notice and make his business and their business "the world-wide one." The Japanese, unlike the Chinese, pay when they are sick and not when they are well, and as, according to

Gilbert and Sullivan, they neither flirt nor use pocket handkerchiefs, there is, it seems, much that could be taught to them by our enterprising drummer of a proprietary drug firm, who could doubtless establish a large and profitable connection in the lines of "special medicine and toilet."

We are convinced, too, after reading this new literary venture most diligently, that Kin Talyen could be imported and sold in this country at a profit. It is, moreover, doubtless a stimulant of rare power as well as a febrifuge of honorable ancestry, while we find modestly tucked away between the first and second pages the personal statement of our alien editorial colleague that it is truly a "blessed" tonic. Blessed, as he goes on to explain, with the occidental familiarity that heeds confinement because it makes three Japanese grow where two grew before.

That an article possessing such virtues should find a ready sale in European markets can easily be understood. Even with us in these strenuous days of small checks for quick results as a preventative to race suicide, the demand would be great, while the *per capita* bonus of France for the increase of her birth-rate would soon exhaust the national treasury. The importation of India shawls, with which the late and revered Queen of Great Britain was wont to reward her well-done, good-and-faithful-subjects, would become once more an animate industry, and the rust and decay of an ancient and effete civilization would be Japanned over with a virile varnish, which is as thoroughly up-to-date as is to-morrow.

It is, however, with the gifted and able editor, Mr. Shiba Daisuke, and not with Kin Talyen alone that to-day we have to do. To him we extend the glad hand of fellowship, or, as he would express it—"Shuku-Shi," and the Medical News hastens to welcome the *Sanitary Journal of Tokyo* to the ranks of medical journalism, while it congratulates it most heartily on its efforts to "celebrate" this inestimable boon to humanity, thereby advancing the pleasure and happiness of home and society and adding, in no small degree, to the general gaiety of nations.

THE FIRST STEP THAT COUNTS.

The first action of Judge Magoon, the Governor of the Canal Zone, in his official capacity as Chief of the Sanitation Department of the Isthmus, is a most important one in its bearings on the medical profession.

In the first place, he has raised the pay and emoluments of Dr. Gorgas to ten thousand dollars a year as a deserved recognition of not only what he expects him to do in the future, but also of what he has achieved in the past. This increase of pay is also extended to all heads of a department in sums varying from six hundred to a thousand dollars each, according to rank and present pay. In the second place he has approved of Dr. Gorgas' estimates for the fiscal year beginning July 1, 1905, exactly as they were submitted —a sum aggregating six hundred thousand dollars, not inclusive of medical supplies. Third, he has, as requested by Dr. Gorgas, approved of the appropriation of $40,000 for the establishment of the hospital as desired by him, which sum is to be immediately available.

This not only shows a desire on the part of the authorities to push the matter of sanitation as rapidly as possible, but it is also indicative of a spirit of hearty cooperation with the medical officers in charge that will go far to producing the result which they both so earnestly desire. That it is entirely sincere and actuated by the single aim to get the best possible service on the Canal, no one who knows the personnel of the Commission and the medical staff can question. It is in fact to be regarded as the first fruits of the old commission that slept, and not the proverbial sweeping of the new broom.

ECHOES AND NEWS.

NEW YORK.

A Correction.—We are informed that an error occurred last week in the list of hospital appointments, whereby the first place at St. John's, Brooklyn, was said to have been obtained by R. R. Patterson. The name given should have been that of Alfred W. White.

Hospital Bill Passed.—Hackett's bill to authorize and provide for the erection and maintenance of a new public hospital in the city of New York, between Twentieth and Forty-second streets, passed the Assembly. The capacity is to be seven hundred. The Board of Estimate may choose the site.

Hospital Appointments.—The following Physicians and Surgeons have secured places since the publication of last week's list: *Beth Israel,* A. C. Margulies, S. J. Goldfarb. *Jamaica* (Long Island), M. T. Powers, L. V. Clarke. *Ruptured and Crippled,* P. Fiaschi. *Lincoln,* first, W. R. Terry.

Hospital Extension Plans.—Plans have been filed with the Bureau of Buildings for the enlargement and remodeling of the main building of the Willard Parker Hospital in Sixteenth Street, east of Avenue C. A three-story extension, 38 feet wide and 78 feet long, is to be added on the front and rear, new fireproof staircases are to be built, and a new up-to-date plumbing plant installed. All the new construction work is to be fireproof, and the cost is estimated at $20,000.

Increase in Meningitis.—In the death report of the Department of Health, issued last week, for the week ending Saturday at noon, it is shown that there were twenty-three more deaths from cerebrospinal meningitis than during the week before. Last week there were 110 deaths from this disease, against 87 of the week before that. Three weeks ago there were 104 deaths, and four weeks ago 117 deaths.

New Health Commissioner.—A Homeopath, Dr. Eugene H. Porter, of New York City, was appointed by Governor Higgins as the State Commissioner of Health to succeed Dr. Daniel Lewis, whose term has expired. The salary of the Commissioner is $3,500 a year and expenses, and his term is for four years. Dr. Porter is a representative of the homeopathic school and the editor of the leading journal of that school. He is also a former president of the State Homeopathic Society.

Anatomy at the Post Graduate.—The New York Post Graduate Medical School has just inaugurated a separate and distinct department to be known as a School of Anatomy. This most important branch of medical science will henceforth be handled elaborately and with detail in all its branches. The managers of the Post Graduate School have long believed that insufficient attention is generally given to anatomy, and have awaited the psychological hour for this new departure. A separate building has been secured for the work, adjoining the established school and hospital buildings. Dr. Neil MacPhatter, the former Adjunct Professor of Surgery, has been placed in full charge.

Graduation Exercises of the Eclectic Medical College.—The forty-fourth commencement of the Eclectic Medical College of the City of New York was held last week at Carnegie Lyceum. Among those on the platform besides the faculty were Col. N. S. Dike, Thos. F. Byrne, Warren S. Burt, James Rascover, Alfred H. Curtis, Dr. Pitts Edwin Howes, of Boston; Dr. F. W. Abbott, of Taunton, Mass.; Dr. A. W. Forbush, of Boston, and Dr. A. R. Tiel, secretary of the State Board of Examiners. The program included prayer by the Rev. Dr. Potter, report of the faculty by the dean, who congratulated the trustees and alumni upon me showing that the students had made before the State Board, and who also announced several valuable donations. Degrees were conferred by W. R. Spooner, president of the board of trustees, prizes were presented by Prof. J. H. Gunning, and the valedictory by N. M. Villone. The members of the graduating class are: Phillip L. Beream, A.B.; William A. Cimillo, M. Fallick, A.B.; Julius Goldsmith, E. H. Keidanz, Ph.G.; M. B. MacDermott, A. J. Mitchell, B.S.; C. L. F. Noark, Ph.G.; G. W. Schaefer, Ph.G.; C. H. S. Selinger, James Slamovitz, M. M. Thaler, A.B., and N. M. Villone. In the audience were many out-of-town doctors and friends of the college, notable among them being: Dr. John Perrins, of Boston; Dr. E. H. King, of Saratoga, N. Y.; Dr. O. W. Sutton, of Bath, N. Y.; Dr. L. H. Smith, of Buffalo, N. Y.; Dr. Q. J. Whitney, of Unadilla, N. Y.; Dr. L. E. Horton, of Avoca, N. Y.; Dr. F. D. Gridley, of Binghamton, N. Y.; Dr. Marion Vries, and John W. Bookwalter. A dinner to the graduating class was given at the Hotel Astor, where covers were set for 150.

Defeat of the Osteopaths.—Apropos of the recent scramble of the osteopaths to become legalized in this State, the *Times* prints the following: It is hard to tell whether Tuesday's vote in the State Senate on the bill to put "osteopaths" on a legal level with doctors of medicine is the more discouraging when viewed as illustrative of the Senate's intelligence or of that of the voting population that sent to Albany so many men capable of lending their aid to a measure so harmful to public interests, so dangerous to the public safety. One more vote for the bill and it would have passed the Senate, but, fortunately for New York's reputation as a civilized State, that does not mean that within one of half the Senators are so densely benighted that the specious pleas of the too ambitious masseurs convinced their substitutes for minds. Only eighteen members of our nominally wiser and more careful House were in that lamentable condition, while twenty-five of them proved that they had combined some sense with some information by opposing the bill. Thus was it—killed? Oh, no; only stunned, and Senator Davis, of Buffalo, says he will resuscitate the miserable little monster at the first opportunity, meaning by the first opportunity, of course, the first time when he thinks the intelligence of the Senate is sufficiently diluted to give the thing a chance for its life. The prospect is not reassuring. Meanwhile we can get what happiness we can from the thought that for the present the masseurs will remain under their present absurdly slight restrictions, and that homicide will not be for them entirely without its inconveniences, sometimes rising to dangers. That's something.

Orthopedic Dispensary.—It is announced in the thirty-seventh year book of the New York Orthopedic Dispensary and Hospital, for the year 1904, that the institution has, since October last, been free from debt, the deficit of $22,000 having been wiped out through the efforts of several friends. The yearly expenses of the institution at present amount to about $37,000, while its income from invested funds, subscriptions, and contributions is about $30,000. The difference is generally made up through entertainments, portrait shows, and the like, but the president, O. Egerton Schmidt, in his address, which prefaces the report, says that this is not a satisfactory nor certain source of income. For this reason it is hoped that the endowment fund, now amounting to $102,000, may be increased to at least $200,000 in the near future. One of the most important events in the life of the institution during the year 1904 was the opening in July of the country branch and industrial school at White Plains, where to children is given practical education while under treatment for their deformities. This important adjunct to the work of the dispensary and hospital was the gift of Miss Emily A. Watson and Mrs. Walker in memory of their father, John Watson. At the time the annual report was prepared there were thirty-nine children under treatment at the country branch. As to the work accomplished by the institution, the total number of patients treated during the year ending September 30, 1904, was 4,017, an increase of 138 over the number treated the year before. Of these 300 cases were cured, 497 discharged, relieved, 1 discharged as incurable, 370 cases not treated, 22 died, 14 cured, and continued for observation, and 2,813 continued for observation. The number of visits to the dispensary by patients was 19,305, the number of visits made by nurses to patients at their homes, 3,116, making a total of 22,421. The number of operations performed was 211, and the number of patients operated upon 140. Subscriptions to the endowment fund have now reached a total of $102,176, and during the year the general subscriptions amounted to $3,968. The donations, which are classified separately, were $4,110. For annual free beds, which are endowed for that length of time upon payment of $250, the sum of $6,250 was received. The portrait show yielded the institution $7,010. The total receipts for the year were $12,176.33.

New Organization of Milk Dealers.—Nearly all the larger milk dealer in the Borough of Manhattan, besides a number in Brooklyn, have just united in an organization, under the title of the Association for Improvement of the Milk Supply of New York. The object of the movement is expressed in the name of the new organization; but its significance lies in the fact that the principal wholesale and retail dealers in milk have now voluntarily come into cooperation with each other to improve the quality of milk sold in this city. Heretofore, each company or individual owning a milk business has taken only such steps for improvement of the milk sold, as seemed necessary to him; or, in some cases, such as were required by the Department of Health from time to time. The dealers now propose to act as a unit for improvement of their product, and will use every possible means to this end, including full co-operation with the Department of Health. The Association has retained Dr. E. J. Lederle, formerly Commissioner of Health, as consulting sanitarian, adviser and analyst; and he, with the Executive Committee of the Association, will represent it in its relations with the Department. The membership of the Association already includes nearly forty firms and individuals, among which are the Briarcliff Farms, Sheffield Farms, Slawson, Decker Co., The McDermott-Bunger Co., The Mutual Milk & Cream Co., The Beakes Dairy Co., T. O. Smith's Sons, Thorndale Farms, and other representative companies. While the several companies in the Association differ widely as to the sources of their milk supply, and the manner of its distribution, yet they have many interests in common, so that the men having the management of the larger milk businesses, came to believe that some concerted action by milk dealers, especially the wholesalers, was advisable, not only to strengthen their position in relation to the sanitary authorities, but to take steps for the scientific control of milk and its products, with a view to their improvement. Up to the present time the wholesaler has been in an unsatisfactory position with respect to the commodity he is handling. In most other lines of trade, the large dealer is either a direct manufacturer or else he is in a position to control the quality of the goods he is selling, and to know all the conditions under which his product is made and distributed. It is otherwise with the dealer in milk. He has at best very uncertain control of the small farmers from whom he buys at various creameries and milk stations; and while he can be reasonably sure of the methods used by his own employees in handling the milk in transit, he is again in danger of having his milk mishandled or even adulterated by a retailer who may be dishonest. The result is that he has been buying and bringing into New York City a product, the quality of which is at best uncertain, and turning it over to retailers whose actions he cannot control; meanwhile he is well aware that the question of the quality of the product is being constantly raised by the sanitary authorities, and the conditions of the business are such as to make him the responsible party in case of prosecutions for discovered impurities or adulterations. From this it happens that he is constantly liable to the payment of fines and other legal expenses, and in some cases must risk even the revocation of the permit under which he is doing business. A more unsatisfactory position for the safety of honestly invested capital and business experience can hardly be imagined. On the other hand, it is believed that direct and positive advantages will follow the organization of milk dealers for mutual improvement. It is well known that the milk trade is gradually tending to a point where the price of milk will depend upon its actual quality, with respect both to amount of butterfat and to purity from a bacteriological standpoint (cleanliness). The great success attending such milk businesses as have aimed first at quality is not surprising, when it is recalled that thousands of New York City patrons have become interested in the question of pure milk, and are willing and able to pay for what they want. The opportunity to supply this demand, and to aid its growth, is open to all milk dealers, but it is not possible to do this unless measures are taken to obtain positive knowledge of the present condition of the product as it is received in the city each day, and to take steps for the improvement of sanitary conditions at farms, dairies and creameries. Members of the Association, in their individual capacities, are already at work in the interest of the new movement. The work done by and for them includes periodic examination of milk products from the various milk stations and creameries, and of milk from the several farms supplying each station. Where these examinations disclose opportunities for improvement in the milk, further inspections are made at the creamery, especially to determine whether the sanitary conditions are as they should be; next, any farmer who is supplying milk below the creamery standard, is notified of the fact, and advised on methods for improving the product of his farm, with respect both to the richness and to the cleanliness of his milk. The wholesale dealers are also aiming to improve the conditions under which milk is shipped to this city. Some of them are introducing pasteurization as a means to greater cleanliness and better keeping quality of the milk, and are inducing those retailers who handle milk in groceries, in the tenement districts, to use better methods in caring for the milk while it is in their stores. Another feature of the Association's work will probably be a series of lectures by physicians, sanitarians and food experts, designed to give the wholesale and retail dealer in milk some further knowledge of the scientific side of the business in which he is engaged.

PHILADELPHIA.

Hospital Report.—During April 189 patients were admitted, 197 discharged, and 405 treated at the Presbyterian Hospital. In the dispensary 2,059 patients were treated.

Students Addressed by Naval Director.—The senior students of the Jefferson Medical College listened to an address, May 4, delivered by Dr. R. A. Marmian, Director of Medical Service of U. S. Navy.

Nurses Receive Diplomas.—The Medico-Chirurgical Hospital Training School delivered diplomas to twenty-one nurses, whom the authorities now regard as qualified to take up their life's work. The diplomas were presented by Dr. Judson Daland, after which Dr. Ernest Laplace delivered the address of the evening. Miss Edith A. McPherson, directress of the training school, was given much credit for the efficiency attained by graduates.

Management of the Home for Incurables Meets.—At the meeting of the Board of Managers of the Philadelphia Home for Incurables, the following officers were elected: President, Mrs. Edward Ogden; Vice-Presidents, Mrs. Edward Fell, Mrs. H. Smucker, Mrs. D. L. Crozier, and Mrs. W. P. Baird; Corresponding Secretary, Mrs. H. S. C. Nichols; Recording Secretary, Mrs. E. Henderson; treasurer, Mrs. Charles H. Thomas. At the same meeting means of obtaining money to pay for the building erected last year at a cost of $55,000 were discussed.

Philadelphia Academy of Surgery.—At the meeting of this society, which was held May 1, Dr. John H. Jopson read a paper entitled, "Acute Gangrenous Appendicitis in Typhoid Fever Simulating Perforation."

Dr. Henry R. Wharton reported "Three Cases of Fracture of the Head of the Tibia." Dr. Edward Martin reported a "Case of Suture of the Femoral Artery." Dr. Francis T. Stewart demonstrated "A New Method of Immediate Enterostomy; reported "A Case of Suture of the Femoral Artery," and showed "A Specimen of Volvulus of the Omentum."

Bequests.—According to the will of Mrs. Clement B. Newbold, the Maternity Ward of the University Hospital will receive $5,000, the House of the Merciful Saviour for Crippled Children, in Philadelphia, $5,000, Foreign and Domestic Missionary Society of the Protestant Episcopal Church in the United States, $20,000, and the trustees of the Christmas fund of the Diocese of Pennsylvania for Disabled Clergy of the Protestant Episcopal Church, $10,000. The will of Emma F. Moffitt gives the Rush Hospital at Malvern, Pa., $300, and the St. Faith's Home at Tarrytown, N. Y., $800, out of an estate of $10,000.

Pennsylvania Hospital Records.—During last year 44,138 patients were treated, the ambulance made 1,565 calls, and the hospital did more work than in any one of the preceding years. As a result of this there is a deficit of $40,000. At the annual meeting the managers pointed out the necessity of obtaining more contributors, and elected the following managers: Benjamin H. Shoemaker, T. Wistar Brown, Charles Hartshorne, James T. Shinn, John B. Garrett, John W. Biddle, John T. Lewis, Jr., John S. Jenks, Joseph E. Gillingham, Archibald R. Montgomery, Henry H. Collins, and Joseph B. Townsend; treasurer, Henry Haines.

M. D. for Chinese Girl.—Miss Li Bi Cu of Hing Chua, China, who has spent the last four years in this city taking a medical course at the Women's Medical College, will graduate from that institution this year with high honors. So far as is known Miss Li is the first Chinese woman to study medicine in this country. She was born in Hing Chua, where her father is the leading spirit of the Methodist Church. This young woman has been in this country more than eight years and has spent all of her time in hard study. She first studied at Herkimer College, New York. She graduated from that institution with high honors, and decided to take her medical course in this city.

The Meeting of the American Therapeutic Society.—This association convened in Philadelphia, May 4, 5, and 6, at the Bellevue-Stratford. The President's reception and supper were held Thursday evening at 7 o'clock in the Red Room of the Bellevue-Stratford Hotel. The guests present were Drs. John H. Musser, James C. Wilson, James Tyson, H. C. Wood, R. C. Curtin, S. Solis-Cohen, Judson Daland, T. L. Coley, J. V. Shoemaker, all of Philadelphia; Rev. T. C. Easton, Drs. Noble P. Barnes, Arthur J. Hall, L. Kolipinski, D. O. Leech, John S. McLain, F. P. Morgan, R. Reyburn, Jesse Shoup, and W. M. Sprigg, all of Washington, D. C.; Drs. Carl Beck, E. B. Bronson, E. D. Fisher, G. B. Fowler, P. B. Porter, W. H. Porter, T. E. Satterthwaite, and R. W. Wilcox, all of New York City; Dr. F. E. Stewart, of East Orange, N. J. The members of the society were entertained at luncheon at 1 o'clock, Friday afternoon, by Dr. John V. Shoemaker, at his home. Dr. H. C. Wood gave a luncheon to the society in his laboratory at 1 o'clock, on Saturday afternoon.

The Governor Acts Upon Bills.—Governor Pennypacker approved the bill providing for the registration of births and deaths. According to the terms of the bill the Central Bureau of Vital Statistics shall be under the immediate direction of a State Registrar, who is to be appointed by the State Commissioner of Health The registrar must be a physician of not less than three years' practice, and must be a competent vital statistician. His term of service will be four years, at an annual salary of $2,500; he is allowed four assistants with a salary of $1,000 each. The bureau will be quartered in the State Capitol. Each city, borough and township shall constitute a primary registration district to be in charge of a local registrar, whose duty it will be to return all births and deaths. The bill which provides for the establishment of a Board of Examiners for osteopathic physicians has been vetoed. His reasons for refusing to sign the bill accompanied the veto. He said if such a bill were to become law the authority of the State would be given to a system of practice in the healing art which excludes the use of medicine and surgery.

CHICAGO.

Election of Dr. Wm. J. Butler.—Dr. Wm. J. Butler has been elected Assistant Professor of Pediatrics, in Rush Medical College, University of Chicago.

Appointment of Dr. Hunter.—Dr. Warren H. Hunter has been appointed a member of the medical staff of the Coroner's office. Dr. Otto W. Lewke will be retained.

Election of Dr. Butler.—At a recent meeting of the Board of Directors of the Chicago Post Graduate Medical School, Dr. Geo. F. Butler was elected Professor of Medicine.

Optometry Bill.—After hearing of this bill by the Illinois Senate, and speeches made against its enactment by Drs. Wm. H. Wilder, E. V. L. Brown, and J. A. Egan, of the State Board of Health, the bill was killed by unanimous vote of the Committee.

Medical Staff of German Hospital.—At a recent meeting the following appointments were made: Consulting physician, Dr. Julius H. Hoelscher; attending physicians, Drs. Rudolph Menn and Frank W. Lambden; attending surgeons, Drs. Wm. C. Wermuth, and Emanuel J. Senn; attending gynecologists, Drs. H. Edward Sauer and Cecil von Bachelle; attending oculist and aurist, Dr. David Fiske; attending obstetrician, Dr. W. F. Grosvenor, and skin and genito-urinary diseases, Dr. Louis E. Schmidt.

Reduction Method for Disposal of Garbage.—There is only one successful method for disposing of garbage in large cities, and this is by the reduction method, according to Alderman Walter J. Raymer, who recently discussed this subject. He stated that no crematory, so far as he knew, has been successful in handling the problem. Garbage consisted of 95 per cent. water, and one could not burn water. Chicago has reached a time when the question of garbage disposal must be solved. A difficulty that confronts us is that our debt limit has been reached. A contract for five years would embrace an expense of $5,000,000. This money cannot now be raised.

Free Popular Lectures on Health Topics.—The Chicago Medical Society has rendered a distinct service, both to the public and to the Health Department, by its course of free popular lectures on health topics. The last of these for the season, on "Vaccination and Smallpox," by Dr. Herman Spalding, chief medical inspector of the department, and on "Epidemic Cerebrospinal Meningitis," by Dr. Frank Billings, were especially timely and valuable. That Dr. Billings has already done much to allay the popular and the professional dread of an unfamiliar and therefore a terrorizing disease, which has been unduly exploited alike in the secular and the medical press. Unduly exploited, at least as far as Chicago is concerned, for, as a matter of fact and figures, not only cerebrospinal but all forms of meningitis show a much greater relative decrease of

mortality since 1898 than do many other causes of death which attract much less attention. Since the last cerebrospinal fever flurry, in 1898, when the sensationally dreaded disease caused 17 deaths all told in Chicago, there has been an average decrease of .21 per cent. in the deaths from the different forms of meningitis—epidemic, tuberculous, cerebral and spinal—and the greatest total number of deaths from the epidemic form in any one year was 18 in 1899. During the same period there has been an average increase of from 52 to 55 per cent. in the mortality from measles, scarlet fever and whooping cough. The total deaths from epidemic cerebrospinal meningitis in the last seven years was 55; from measles there were 1,086 deaths; from whooping cough, 1,428, and from scarlet fever, 1,875 deaths. In the first four months of this year there have been six deaths from the sensational disease, 117 from measles, and 159 from whooping cough.

GENERAL.

Meningitis in Russia.—Several deaths from cerebrospinal meningitis have occurred here. A dispatch from Kushina says that two deaths from that cause have occurred there.

Meningitis in Germany.—Contrary to the prediction of medical men the epidemic of cerebrospinal meningitis has not abated with the advent of warm weather. There have been fresh outbreaks of the disease in the villages of Upper Silesia, and it has also increased in virulence in the larger centers. There has been an outbreak in the Eleventh and Fifty-first infantry regiments at Breslau.

Honor for Professor Pozzi.—Pupils, friends and colleagues of Professor Samuel Pozzi, the famous French surgeon, have decided to present him with a medal to commemorate his recent presidency of the Seventeenth Congress of Surgery and his promotion to the grade of commander of the Legion of Honor. The medal has been designed by Chaplain and will be presented at a banquet which will be given at the conclusion of the summer term of the Paris Faculty of Medicine.

German Laryngological Society.—The German Laryngological Society, which was founded on the initiative of Professor Moriz Schmidt, of Frankfort-on-the-Main, in August, 1904, will hold its first annual meeting at Heidelberg on June 13. Professor Bernhard Fraenkel, of Berlin, will deliver an address on the future of larygology. Professor Schmidt is the president, Professor Fraenkel, vice-president, Dr. G. Avellis, of Frankfort-on-the-Main, and Professor Paul Heyman, of Berlin, secretaries, and Dr. Neumayer, of Munich, treasurer of the new society.

X-Ray Congress.—The International Congress, called to celebrate the tenth anniversary of the discovery of the Roentgen ray and to collate the latest applications and developments, was held in Berlin, April 30 to May 3. Professor Roentgen was present. The French representation was particularly strong. Among the Americans present were Dr. Leonard, of Philadelphia, Dr. George Kunz, of New York, and Dr. Rudisjicinsky, of Cedar Rapids, Ia. The latter's thesis was "The Study of the Degenerative Processes of the Brain by the Roentgen Rays." An exposition of Roentgen apparatus was a feature of the congress.

French Medical Study Excursions.—The seventh Voyage d'Études Médicales will take place this year from September 1st to the 14th, under the presidency of Professor Landouzy. The health resorts of the Southwest of France will be visited as follows: Luchon, Siradan, Barbazon, Capvert, Bagnères-de-Bigorre, Argèles, Barèges, Saint-Sauveur, Cauterets, Pau, Eaux-Bonnes, Eaux-Chaudes, St. Christau, Salies-de-Béarn, Biarritz, Cambo, Hendaye (Sanatorium), Dax and Arcachon. A detailed program will be published later. All communications should be addressed to the Organizer of the Excursions, Dr. Carron de la Carrière, 2, Rue Lincoln, Paris.

Morphine Mixed With Flour.—The steamship Coptic brings a report of many deaths in the inland country of China. According to a story from Amoy, it has been the custom to smuggle morphine into that section, as the duty on the drug was very heavy. Recently a number of boxes of the drug were smuggled inside a shipment of flour. In some manner the boxes broke, causing the drug to become mixed with the flour. Instead of the flour being condemned, it was sold to the up-country districts. Within a week the Chinese began to die, and for nearly a month the deaths continued from poison administered in apparently the most mysterious manner. It is estimtaed that fully fifty persons died of morphine poisoning.

Royal College of Physicians.—Sir Richard Douglas Powell, M.D., who has just been elected president of the British Royal College of Physicians, is a Londoner. He was born at Walthamstow, and was a student at University College Hospital, which has always been famous as the training-ground for the University of London, from which he graduated with honors in 1866. He is one of the consulting physicians to Middlesex Hospital and to the Brompton and Ventnor Hospitals, and he is a late president of the Clinical and Medical societies. He has written a good deal on medical subjects. Until 1899 he was one of the physicians extraordinary to the Queen, and he is now physician extraordinary to the King.

Milk and Scarlet Fever.—In a recent report, as outlined in the *British Medical Journal*, Dr. Anningson, Medical Officer of Health for Cambridge, traced the origin of a recent outbreak of 78 cases of scarlet fever apparently to infected milk. The dairy farm immediately implicated was in good order, but the dairyman had supplemented his own milk by a purchase from a purveyor who obtained his supply from fifteen different sources. A man employed in milking at one of these was found to have his hands and feet in a state consistent with a belief that he had recently suffered from scarlet fever. His child was in the same condition, and both had visited relatives in a village in which scarlet fever was stated to have been present. No further cases attributable to the Cambridge dairyman's milk occurred after the supplementary supply was stopped.

Quackery in Germany.—The following figures, taken from the *British Medical Journal*, show the prevalence of quackery in the German Empire. In Prussia the number of persons who practise medicine without a legal qualification is 4,104, being in the proportion of 22.8 quacks to every hundred legitimate practitioners. That quackery is increasing rapidly may be gathered from the fact that in the period 1897 to 1902, while the population of Berlin increased by 30 per cent., the number of quacks increased by 57 per cent. There are in Germany 835 "nature healing" associations with a total membership of 111,887. In the course of three years 392,000 pamphlets setting forth the excellences of that system of quackery were distributed, and in the single

year 1902 no fewer than 3,056 public addresses in praise of it were delivered. One of the journals devoted to the propagation of nature healing has a circulation of 112,000 copies. The text-book of Bilz, the prophet of the cult, has had a sale of a million copies, while of that of his former employee, Platen, 250,000 copies have been sold.

Anti-Tuberculosis Movement in Nova Scotia.—After a long struggle with ignorance, prejudice and apathy, the effort for measures directed to the cure and prevention of tuberculosis in Nova Scotia is gaining ground. It has received official sanction in the opening, last summer, of a government sanatorium for the treatment of the less advanced stages of the disease. The open air treatment is adopted and the accommodations, though limited to twenty patients, are of an admirable type. The sanatorium has been open long enough thoroughly to demonstrate its efficiency, and it is to be hoped that other similar institutions, public and private, will help to rescue the province from a scourge which attacks the population there with the same virulence it exhibits in New England.

The Housing Problem in the Smaller Cities.—One of the most hopeful aspects of the housing problem is the attention it is attracting in the smaller cities, where conditions have not yet reached the deplorable state of those in the more congested centers, but where the fancied security of the public in that respect might easily have let slip the opportunity for the "stitch in time" were it not for the general interest in the matter aroused by the investigations in New York and other large cities. New Jersey is taking the matter up with considerable vigor. Portland, Maine and Des Moines, Ia., are among the towns which have discovered an alarming but not hopeless nucleus of congestion and lack of sanitation, and have begun an agitation for curative and preventive measures which is to be heartily commended to every city in the country. Now is the time for the "ounce of prevention," and the practitioners of these smaller cities are in a position to speak with authority upon the matter and do much to save their communities from entering upon the career of cruelty and wastefulness which is so hard to check in the crowded metropolis.

Maine Medical Association.—The fifty-third annual meeting will be held in the Common Council Chamber, City Building, Portland, Me., Wednesday, Thursday and Friday, June 7, 8 and 9. The following is the program of papers to be read: "Diphtheria and Pharyngitis and their Demands for a Correct Diagnosis," by Dr. Benjamin Franklin Makepeace, of Farmington, Maine; Discussion by Dr. James O. McCorison, of North Berwick, and Dr. F. L. Dixon, of Lewiston; "Vesical Fistula," by Dr. H. H. Purinton, of Lewiston; "Post-Mortem Examinations," by Dr. H. E. Milliken, of Waterville; "Urano-Staphylorrhaphy," by Dr. Owen Smith, of Portland; "Personality as a Remedial Measure," by Dr. B. F. Barker, of Bath; "Paper," by Dr. Chauncey R. Burr, of Portland; "Tetanus," by Dr. Wallace E. Webber, of Lewiston; "Treatment of Cold Abscesses," by Dr. Hiram Hunt, of Greenville; "Preliminary Anesthesia with Ether Sequence," by Dr. H. F. Twitchell, of Portland; "The Uncertainties of Medicine, Their Lessons," by Dr. George A. Phillips, of Bar Harbor; "Cerebral Arterio-Sclerosis," by Dr. Chas. B. Witherle, of Portland; "The Necessity for County Sanatoria, for the Treatment of Tuberculosis," by Dr. E. H. Bennett, of Lubec, Maine; "Annual Oration," by Dr. Charles Jewett, of Brooklyn, N. Y.

Oklahoma State Medical Association.—This society met in Guthrie, Oklahoma, May 10 to 11, 1905. The following papers were read: President's Annual Address, by Dr. A. K. West; "Myxedema," by Dr. R. H. Tullis, of Lawton; "Some Symptoms and Peculiarities in Diseases of Children," by Dr. K. D. Gossom, of Cluster City; "Drug Tolerance," by Dr. W. C. Fulkerson, of Marshall; "The Advance of Ophthalmology during the Last Twenty Years," by Dr. L. Haynes Buxton, of Oklahoma City; "Early Treatment of the Insane," by Dr. W. W. Rucks, of Guthrie; "Intussusception," by Dr. W. E. Dicken, of Oklahoma City; "The Obstetrical Crime and its Remedy," by Dr. H. K. Wilson, of Enid; "The Modern Treatment of Tuberculosis," by Dr. L. B. Morse, of Guthrie; "Difficulties in the Diagnosis of Appendicitis," by Dr. Fowler Border, of Mangum; Address, "The Medical Profession from a Legal Standpoint," by Hon. P. C. Simmons, Attorney-General; "Tetanus," by Dr. R. V. Smith, of Guthrie; "Hernia," by Dr. G. A. Wall, of Oklahoma City; "Conservatism in the Treatment of Complicated Purulent Otitis Media," by Dr. H. H. Wynne, of Oklahoma City; "Practical Prescription Writing," by Dr. L. T. Noblitt, of Weatherford; "Cycloplegics or Astringents—Which?" by Dr. E. E. Hamilton, of Wichita, Kans.; "Eddies in the Practice of Medicine," by Dr. J. T. Gray, of Stillwater; "Injustice of the Law of the State Medical Examining Boards," by Dr. Virgil A. Voyle, of Gotebo; "Nephritis in Pregnancy," by Dr. J. A. Gillis, of Frederick; "Chronic Urethritis," by Dr. R. T. Edwards, of Oklahoma City; "The Puerperal State," by Dr. A. B. Fair, of Frederick; "Appendicitis, Urinary Calculi, Kidney Decapsulation and Fixation," by Dr. A. L. Blesh, of Guthrie; "Food and Drug Adulteration," by Dr. C. D. Arnold, of El Reno.

Recent Works on Poverty and Health.—There has been for some time great activity in foreign countries, touching the problem of poverty as it relates to health, the care of the aged, support of homeless children, the housing question and kindred topics. Many of these subjects are treated in the form of rather extensive monographs put out by associations whose purposes include the different lines of social activity. One of the more important is the "Deutscher Verein für Armenpflege und Wohlthätigkeit," which has put out recently *Die Beratung Bedürftiger in Rechtsangelegenheiten*, H. von Frankenberg and Ernst Krug, and published by Duncker & Humblot, Leipzig, at 60 cents.

On the relation of the problem of poverty and disease a most valuable contribution is found in *Die Aufgaben der Armenpflege bei der Bekämpfung der Tuberkulose*, and *Die Fürsorge für Ausländer in Deutschland*, published by the same houses, at 75 cents and $1.15, respectively. Of interest as regards the care of the children is *Kinderarbeit und Gesetzlicher Kinderschutz in Oesterreich*, by Sigmund Kranz; Denticke, Leipzig. Price, $1.05.

Not a little valuable data is included in the German study referred to of the relief problems involved in the struggle against tuberculosis. The fact is brought forth that tuberculosis produces 100,000 deaths annually in Germany, or one-seventh of all deaths. Of these, the figures show that a close relation exists between the social classes and the number of deaths. Four times as many cases occur among the poorer classes as among those better situated. This the author says makes the problem of limiting the malady a part of the larger

social problem of handling poverty. The efforts to limit the disease are discussed under two general heads, the public control of the cities as to general health conditions, sanitation, and the like, and the more immediate practical efforts to limit it by the care of the infected. An idea of the increase of the trouble, modified somewhat by the fact of an increased attention to it, may be gained by the following: The total number treated in 1898 was 4,910, in 1900 it was 11,094, and in 1892 it was 16,489. The expense had also about quadrupled, rising from 1,546,758 marks in 1898 to 5,828,597 in 1902. The greatest step toward improving the condition in this regard was the organization in 1895 of a central committee on establishing hospitals for tuberculosis patients. The chief problems recognized are the destruction of the bacilli and the separation of the infected from the other patients. Both these problems are made more difficult through the conditions of poverty, crowded houses making infection more frequent among people who have no means to care for the sick.

Illinois State Medical Society.—The fifty-fifth annual meeting of this society will be held at Rock Island, Ill., May 16, 17 and 18. The following papers will be read: "What We Must Learn and Unlearn in the Treatment of Tuberculosis," by Dr. J. W. Pettit, of Ottawa; "Present Status of Serum Therapy," by Dr. E. R. Larned, of Chicago; "Practical Significance of Certain Common Symptoms in the Upper Abdomen," by Dr. J. F. Percy, of Galesburg; "Indormescent Shock," by Dr. H. T. Patrick, of Chicago; "The Consideration of Late Hereditary Syphilis," by Dr. R. R. Campbell, of Chicago; "Percentage Modification of Milk in the Home," by Dr. Chas. R. Spicer, of Springfield; "The Tuberculosis Problem in Illinois," by Dr. Homer M. Thomas, of Chicago; "The Importance of Diet in the Treatment of Tuberculosis," by Dr. Adella Sater, of Ottawa; "Mixed Infection in Tuberculosis, with some consideration as to Treatment," by Dr. Ethan A. Gray, of Chicago; "Climatic Treatment of Tuberculosis, with Special Reference to Colorado," by Dr. C. L. Wheaton, of Chicago; "Typhoid Fever," by Dr. G. G. Craig, of Rock Island; "Differential Diagnosis of Small-pox (Lantern Slides), by Dr. Heman Spaulding, of Chicago; "The Value of Isnordia Palustris in the Treatment of Erysipelas. Report of Cases," by Dr. H. C. Mitchell, of Carbondale; "Pericarditis," by Dr. J. H. Bacon, of Cleveland, Ohio; "Scrofula," by Dr. H. G. Anthony, of Chicago; "The License and Control of the Practice of Medicine in the State of Illinois," by Dr. Geo. W. Webster, of Chicago; "Diagnosis of Chronic Nephritis," by Dr. Chas. L. Mix, of Chicago; "Ocular Manifestations of Chronic Nephritis," by Dr. Leigh E. Schwartz, of Chicago; "Medical Treatment of Chronic Nephritis," by Dr. A. R. Elliott, of Chicago; "Results of Surgical Treatment of Chronic Nephritis," by Dr. A. H. Ferguson, of Chicago; "Report of Three Cases of Intermittent Claudication," by Dr. S. R. Pietrowicz, of Chicago; "The Glycosuria of Hepatic Insufficiency," by Dr. A. C. Crofton, of Chicago; "Respiratory Oxidation Stimulants in Nephritis; Pulmonary and Allied Crises," by Dr. Geo. F. Butler, of Chicago; "Febrile Symptoms of Hepatic Syphilis," by Dr. Jos. L. Miller, of Chicago; "Parenchymatous Keratitis and Subsequent Irido-Choroiditis with Loss of Vision," by Dr. Chas. H. Brobst, of Peoria; "Syphilitic Meningitis in Children," by Dr. W. J. Butler, of Chicago; "Educational Treatment of Neurasthenics," by Dr. Chas. D. Center, of Quincy; "Gastric Fatigue," by Dr. F. B. Turck, of Chicago; "Some Phases of Disturbed Metabolism," by Dr. R. W. Webster, of Chicago; "Some Eye Problems the General Practitioner is called upon to Solve," by Dr. R. J. Tivnen, of Chicago; "Variola," by Dr. L. A. McFadden, of Peoria; "Poisoning from Oil of Wintergreen," by Dr. F. C. Vandervort, of Bloomington; "X-Ray in Leucemia," by Drs. J. A. Capps and J. F. Smith, of Chicago; "Pulmonary Edema following Thoracentesis, with report of a case," by Dr. S. W. Miller, of Peoria; "Air Examinations; Their Importance and Results," by Dr. A. Gehrman, of Chicago; "Intestinal Parasites," by Dr. F. Smith, of Urbana; Address, "The Commerce of Surgery," by Dr. Fernand Henrotin, of Chicago; "Surgery of the Upper Abdomen," (*a*) Surgery of the Stomach, by Dr. Arthur Dean Bevan, of Chicago; (*b*) Surgery of the Bile Tracts, by Dr. Carl Black, of Jacksonville; (*c*) The Emergencies of Pancreatic Surgery, by Dr. Weller Van Hook, of Chicago; (*d*) Surgery of the Duodenum, by Dr. Emerson W. Sutton, of Peoria; (*e*) The Surgical Treatment of Injuries to the Spleen due to Subcutaneous Penetrating Wounds; the Value of Splenectomy in Certain Anemias Associated with Enlargements of the Spleen, by Dr. M. L. Harris, of Chicago; "Surgical Tuberculosis," by Dr. William E. Guthrie, of Bloomington; "Tuberculous Nephritis. Review of literature and report of case," by Dr. Robert Christie, of Quincy; "Some Errors in the Diagnosis of Abdominal Troubles," by Dr. Clifford U. Collins, of Peoria; "Congenital Club Foot," by Drs. John Ridlon and Charles E. Eikenbury, of Chicago; "Malignancy in Uterine Myomata," by Dr. Henry F. Lewis, of Chicago; "Reports of Cases," by Dr. S. C. Plummer, of Chicago; (*a*) Strictures of the Esophagus following Typhoid Fever; (*b*) Colloid Carcinoma of Cecum; (*c*) Penetrating Wound of Liver; (*d*) Gastro-Enteroptosis; "Practical Remarks concerning When and How to Treat Septic Pelvic Affections of Women by Vaginal Incision and Drainage," by Dr. Fernand Henrotin, of Chicago; "Symptoms on Surgery of the Nervous System;" (*a*) Diagnosis and Pathology of Neoplasms of the Brain, by Dr. Hugh T. Patrick, of Chicago; (*b*) Surgery of Cerebral Neoplasms, by Dr. L. L. McArthur, of Chicago; (*c*) Insanity Following Skull Injuries, by Dr. E. Mammen, of Bloomington; (*d*) Cerebral Infection from Middle Ear Disease, by Dr. Norval H. Pierce, of Chicago; (*e*) Pathology and Diagnosis of Lesions of the Spinal Cord and Peripheral Nerves, by Dr. Frank P. Norbury, of Jacksonville; (*f*) Surgery of the Spinal Cord and Peripheral Nerves, by Dr. J. B. Murphy, of Chicago; Discussion opened by Dr. Archibald Church, of Chicago; "Plastic Surgery of the Trachea," by Dr Albert J. Bouffleur, of Chicago; "Pelvic Deformity due to Congenital Dislocation of the Hips and Cæsarian Section," by Dr. C. E. Paddock, of Chicago; "Infectious Urethritis of the Non-Gonorrheal Type," by Dr. P. Kreissel, of Chicago; "Prophylaxis of Syphilis," by Dr. Alfred Schalek, of Chicago; "Perigastric Adhesions after Gallstone Operations: Their Surgical Importance, and a New Operation for their Relief," by Dr. E. Wyllys Andrew, of Chicago; "Are Cases Demanding Removal of the Eye of Interest to the Surgeon and Physician?" by Dr. J. Brown Loring, of Chicago; "Some Considerations Relative to Phlegmon of the Orbit," by Dr. Charles H. Bard, of Chicago; "The Indications for Opening the Mastoid Process in Cases of Empyema of the Cells Following Acute Otitis Media, where there is an Absence of Signs over the External Surface of the Mastoid," by Dr. George E. Shambaugh, of Chicago; "Symposium on Laceration of the Obstetrical Canal, Resulting from Obstetrical Injuries:" (*a*) Pathological Anatomy, by Dr. J. Clar-

ence Webster, of Chicago; (*b*) Causes and Prevention, by Dr. F. H. Kimball, of Rockford; (*c*) Diagnosis and Treatment of Rupture of the Utera, by Dr. George Schmauch, of Chicago; (*d*) Lacerations of the Vaginal Portions of the Uterus and Forix Vagina, by Dr. L. H. Nickerson, of Quincy; (*e*) Diagnosis and Treatment of Lacerations of the Vaginal Body, and of the Peripheral Region, including the Pelvic Diaphragm, by Dr. C. S. Bacon, of Chicago; Discussion opened by Dr. Joseph B. De Lee, of Chicago: "The Value and Place of Duodeno-Choledochotomy in Gallstone Surgery," by Dr. John C. Hancock, of East Dubuque; "Post-Operative Complications," by Dr. Daniel M. Eisendrath, of Chicago; "Pelvic Infections in Women," by Dr. Thomas J. Watkins, of Chicago; "Inversion of the Uterus, with report of cases," by Dr. P. L. Markley, of Rockford; "Bronchoscopy for Removal of Foreign Bodies from the Air Passages," by Dr. E. Fletcher Ingals, of Chicago; "Acute Dilatation of the Stomach," by Dr. A. E. Halstead, of Chicago; "Tuberous Sub-Chorial Mematomata of the Decidua," by Dr. S. R. Hopkins, of Springfield; "Intussusception in Infancy and Childhood, with collection of 1,028 cases, with Statistics," by Dr. J. H. Hess, of Chicago.

OBITUARY.

Dr. Albert A. Davis died May 6, 1905, at his home, No. 149 East Sixty-third Street, New York. He was graduated from the College of Physicians and Surgeons in 1864. Dr. Davis was a member of the Academy of Medicine and the County Medical Society, and an alumnus of St. Luke's Hospital.

Dr. William Hammond, a pioneer physician of San Francisco, died May 4, 1905. He was a native of Maryland and eighty-three years of age. He was an uncle of John Hays Hammond and William Hammond Hall. At the time of the famous Terry-Broderick duel, he officiated as one of the surgeons.

Dr. William Edwards, Superintendent of the Michigan Asylum for the Insane, died April 26 at the University of Michigan Hospital at Ann Arbor of heart trouble. Dr. Edwards was born near Peru, Ind., in 1856, and graduated from the University of Michigan Medical Department in 1884, and was that year appointed to the staff of the Michigan Asylum. In 1891 he was appointed Superintendent.

Dr. Oliver Woodson Nixon, for many years associated with *The Chicago Inter-Ocean* as literary editor, died May 9, 1905, at Biloxi, Miss. Dr. Nixon was a member of General Pope's staff, having been medical director of the army of Missouri. He established *The Evening Chronicle* in Cincinnati in 1870, and with his brother, William Penn Nixon, consolidated it with *The Cincinnati Times*. The two brothers joined in 1878 in the purchase of *The Inter-Ocean*. Dr. Nixon was the author of several books.

Dr. Heber N. Hoople, a specialist on the eye and ear, and author on those subjects, died at his home in Brooklyn, on Monday night, May 8, 1905. He was born in Wales, Ontario, in 1856, and was graduated from Victoria College, Coburg, in 1878, and from the medical department of Toronto University in 1885. He was connected with the Williamsburg Hospital, the New York Eye and Ear Infirmary and the Methodist Episcopal Church Home. He was a member of the British Medical Association, the Long Island Medical Society, the Associated Physicians of New York and the Brooklyn Medical Society. Dr. Hoople had been for a number of years a contributor to the columns of the Medical News, having had supervision of the Department of Diseases of the Eye and Ear.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, April 29.

THE TUBERCULOSIS PROBLEM—THE KING'S SANATORIUM—VITAL STATISTICS OF ENGLAND AND WALES—CANCER CURING IN LONDON—MUNICIPAL CHILD REARING—DENTISTS FOR THE NAVY—THE NEW PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS.

An earnest endeavor is being made to induce our metropolitan sanitary authorities to grapple seriously with the tuberculosis problem as it presents itself in London. On April 15 a deputation representative of all the principal societies and associations concerning themselves with the public health waited on the Metropolitan Asylums Board, which is the chief authority in London in the matter of infectious diseases. The deputation submitted a memorial in which it was stated that between 7,000 and 8,000 persons die every year in London from pulmonary phthisis, the mortality in the male sex being 40 per cent. greater than in the female, and that a much larger number of persons suffered from ill-health arising from the same disease. It was pointed out that the existing provision of hospitals in London for pulmonary phthisis is utterly inadequate. While the deaths in London in 1904 from the diseases admissible to the Board's hospitals (smallpox, scarlet fever, diphtheria, and fever) aggregated only 1,415, the deaths from pulmonary phthisis alone, exclusive of all other tuberculous diseases, were 7,738, and of these a vast proportion were deaths of adult men and women. The money value to the community of the lives lost every year from this preventible and curable disease was enormous, and immensely transcended any possible cost to the rates by sanatorium provision. Dr. T. Orme Dudfield, ex-president of the metropolitan branch of the Incorporated Society of Medical Officers of Health, said that one-third of the deaths which annually occurred in London from phthisis took place in Poor Law Institutions. The matter was brought to the attention of the Board in 1902, but its consideration was delayed for 12 months on the ground that there was not at that time a general consensus of opinion among the metropolitan authorities in favor of their undertaking the treatment of consumptive patients. It was now contended that such a general consensus had been attained, and that the time had come for action, and the deputation therefore asked the Board to apply for the necessary powers. The speaker said there was reason to believe that such an application would not be made in vain, as the Local Government Board was known to be generally favorable to the proposal. The deputation desired hospitals in the first instance for cases in the earlier and hopeful stages of the disease, and refuges for incurables dangerous to others, provided by guardians at the parochial infirmaries, and ultimately, if desired, by the Metropolitan Asylums Board. The cost of maintenance would, it was estimated, be not more than $5 per week per patient, and, assuming that there were 2,000 beds which would enable the managers to take in 4,000 cases a year, the annual cost would be $650,000. If the Board would comply with the prayer of the memorial he felt sanguine that the next forty years would see consumption far on the way to total extinction. Sir William Broadbent, representing the National Association for the Prevention of Consumption and other forms of Tuberculosis, said there was probably about 40,000 or 50,000 people suffering from tuberculosis in London, and of that number 8,000 or 10,000 had the disease in its

early stage, which could be dealt with by sanatorium treatment, with a probability that a large proportion would be restored permanently to health. His hope was that the Board would constitute itself the authority for dealing with tuberculosis as a whole. By dealing with advanced cases they could intercept the disease at its source. Apart from that, if the Board were the tuberculosis authority, it would obtain the cooperation of the medical officers of health, the Poor Law medical officers, and the special hospitals, and they would obtain for the first time a real census of tuberculosis in London. Palaces were not required for dealing with the earlier cases of consumption; bungalows and huts and slightly-built hospitals were all that were required. There were dotted all over London thousands of children who were being made cripples by surgical tuberculous disease of the spine, of the joints, and the like. There was no class of disease which yielded more readily to open-air treatment than surgical diseases of children, yet they were left almost without any resources. The managers were assured beforehand of the cooperation of the Poor Law authorities, who were only too anxious to obtain the Board's assistance in dealing with consumptives, segregating such as could be removed from their homes, isolating, to some extent, those who had to be left in unfavorable surroundings, and securing that the sputum, which was the great cause of disease, should be destroyed. The Board could deal with cases from a different point of view from that of the ordinary hospitals. It would receive patients, not specially for the good of the individual, but for the advantage and protection of the community. It would have a right, therefore, to make its own conditions of admission. It would not receive patients and allow them to leave just when they liked, and thus waste the money which had been spent on them by returning prematurely to their homes and work. It would insist upon the power of dealing with them as long as the medical authorities considered it necessary.

The chairman of the Board expressed the greatest sympathy in the object which the deputation had at heart. The main difficulty was that of expense, and it was satisfactory to be assured that the capital expenditure necessary would not be very excessive. But the question still remained whether the public and ratepayers of London were sufficiently educated and acquainted with the great wants of the tuberculous portion of the population to induce them to give a ready assent to the payment of increased rates for the purpose of providing the sanatorium accommodation required. He promised the deputation the most earnest consideration of the facts which had been laid before the managers, and expressed the hope that the day would soon come when they would see their wishes carried out, whether it were by that Board or through some other body. This may be regarded as the first step in a movement which, it may be hoped, will have the most far-reaching consequences. The State has hitherto simply refused to face the tuberculosis problem, and whatever has been accomplished has been due to private philanthropy and in a much smaller degree to municipal enterprise. So far, practically nothing has been done except in the way of preparing for the campaign. The time has now come for the forces to take the field. But a man is wanted like the elder Carnot, to "organize victory." And it is certain that nothing will come of it all unless the State takes the matter seriously in hand.

The King's Sanatorium, which is being built at Midhurst in Sussex with the million dollars given by Sir Edward Cassel, will, it is announced, be open in the early part of next year. It is high time that some solid result of the enthusiasm excited by the gift should become visible. The Advisory Committee to whom the King delegated the execution of the scheme have been so dilatory that it is not surprising to hear that he has expressed his opinion in terms the reverse of flattering. He is said indeed to be sick of the whole subject of tuberculosis, and to have declared that the movement, to which on its inception he lent his august countenance, is a piece of humbug. This, if true, is probably nothing more than a momentary ebullition of royal temper.

Strange rumors were current some time ago that a German physician from Falkenstein was to be the medical superintendent of the new sanatorium, the reason alleged for the choice being that he had been recommended to the good graces of the king by a lady of quality in whose eyes the doctor had found favor. There was nothing intrinsically improbable in the story, for Edward VII, who speaks with a German accent, has a natural liking for Teutons—there are two on the Advisory Committee—and he is besides notoriously open to female influence. The appointment would assuredly have aroused great indignation in the medical profession of this country. The agreement with the German physician was, it is understood, actually signed, but at the last moment it seems to have been borne in upon those responsible for the selection that the appointment of a foreigner would be regarded as an insult to native talent, and a young Englishman, Dr. N. D. Bardswell, who has had some experience in the management of sanatoria, has been chosen for the post.

The Registrar General's annual summary of the vital statistics of England and Wales was issued on April 26. The figures show an increased death-rate and a reduced birth-rate. The total population of the seventy-six large towns with which the summary chiefly deals, is estimated at 15,271,287, and the birth-rate is returned at 29.1 per thousand, or 0.6 below that of 1903; the crude death-rate was 17.2, or 0.9 more than that of 1903. The birth-rate for the whole country is given as 27.9 and the death-rate at 16.2 per thousand. The chief epidemic diseases carried off 2.49 per thousand, the highest rate, 4.66, being at Liverpool. As to infantile mortality, Hornsey comes out with the lowest figure, 87 per thousand, and Burnley with the highest, 229. In London, the marriage rate was equivalent to 17 per thousand, a falling off amounting to 0.5 as against 1903, and 0.9 below the average for the past ten years. Births were 27.9, or 0.6 below 1903, and 1.7 lower than the ten years' average; at the same time the births of wedlock rose from 37 to 38 per thousand. The death-rate of London was 16.6 per thousand, being 0.9 above 1903, which was the lowest on record, but 1.7 below the decennial average. Infantile morality accounted for a rate of 146, as compared with 131 in the previous year, and 154 over the ten years. In nearly all the principal diseases the mortality decreased, the "net saving of life" in 1904, as compared with the ten-year period, being 7,904. The chief excesses occurred in diarrhea, 1,194 persons, pneumonia 415, and cancer 408, while suicide accounted for an addition of 22. Statistics are also given in regard to 142 smaller towns, which had a birth-rate of 27.5 and a death-rate of 15.6 per thousand.

M. Doyen, sighing like Alexander for a fresh world to conquer, has cast his eyes on this small but wealthy island and is determined to make it tributary to his scalpel. For some time the "yellow" newspapers have been preparing the way for his advent. Now it is definitely announced that "the famous French specialist" has decided to open an institution in London for the treatment with his serum of patients suffering from cancer. A house, with accommodation for forty patients has

been taken in St. John's Wood, a suburb hitherto looked upon as a grove sacred to Venus Vulgivaga. There patients will be treated under the same conditions as in the mother-house in Paris. Mr. Croker, who is suing M. Doyen for the return of a fee of $20,000, may be interested to read the following obviously inspired utterance: "It is understood that the fees charged will somewhat define the limit of Dr. Doyen's work, since, were treatment gratuitous, the demand upon his services would be a serious barrier to his work. For this reason the Paris institution accommodates no more than about one hundred sufferers." Doubtless, there will be a rush for places in the new temple of healing. For the comfort of those doomed, like the Peri of the poem, to look into the gates of Paradise without being able to enter, it is added that "for the benefit of those who cannot be accommodated in the new home, the doctor will, on special days each month, be available in London for consultation, and this is the second part of his scheme, which will, of course, involve continual journeys from Paris." It is likely enough that M. Doyen's commercial enterprise will be as successful here as it has been in Paris. There is a trifling difficulty in the way: he is not legally qualified to practise his profession in this country. It is suggested that the Royal College of Surgeons may come to his rescue by conferring upon him its Fellowship, which is the highest surgical diploma in this country. The College is rather an old-fashioned body, however, and its views on professional ethics are not sufficiently up-to-date to enable it to appreciate M. Doyen's methods of making his discoveries and achievements known to the world. He may perhaps find some other of our numerous licensing corporations more compliant, but it is doubtful whether an honorary diploma granted by any of them would confer the right to practise. Nevertheless, *il est avec les dieux des accommodements,* and doubtless the difficulty will be got over or evaded somehow.

The Huddersfield Corporation, which has been a pioneer of municipal reform in several directions, has made a new departure by adopting a scheme of municipal child rearing. It is noteworthy that the scheme owes its initiative to the Mayor, who is a brother of Sir William Broadbent, Physician-in-Ordinary to the King. Deeply impressed by the waste of child life in the manufacturing town, he offered $4 to every infant born in the district of Longwood on its attaining the age of twelve months, the offer to run during his mayoralty. This opened the eyes of the health authority to the possibilities of successful child-rearing. They recognized that the strength of the town was in its labor, and that if the children were strong and healthy at the age of twelve months the great majority would grow to be strong and healthy men and women. A scheme was accordingly drawn up and adopted by the corporation at a meeting on April 26. In the first place, it provides for the payment of 1s. to the first person who shall notify the birth of a child to the medical officer within forty-eight hours of the event. The medical officer is instructed to draw up for circulation among parents detailed advice to mothers as to the feeding, washing, and clothing of the babies. He is also to draw special attention to the subject of infantile mortality. Moreover, lady health visitors are to be appointed, who shall go into the houses in which births are reported and instruct the mother as to the nursing and rearing of the babies. They will make inquiries where a death is recorded, investigate cases of illness among school children, and inspect workshops where females are employed. An important adjunct is the establishment of a day nursery. This is to be experimental, and at the end of twelve months, if it proves all that is hoped of it, a proposal to make it permanent will be submitted. At the nursery milk will be supplied specially for feeding infants under one year of age.

A step toward a much needed reform in the provision for the physical efficiency of the men serving in the Royal Navy has just been taken by the Admiralty. A dental surgeon has been appointed to look after the dental apparatus of the sailors and marines at Portsmouth. This is the first appointment of the kind ever made. It is an experiment, but if the result is considered satisfactory the arrangement will be made permanent, and will doubtless be extended to other ports and naval stations. The dentist is to rank as a civil servant, not as an officer of the medical service of the navy; consequently, he will not wear uniform. In connection with this subject it may be mentioned that the War Office scheme for providing soldiers with artificial dentures has proved a dismal failure. Soldiers for some reason will have nothing to do with them, and intending recruits are deterred from enlisting when it is suggested that they should wear them. The proportion of rejections for bad teeth is very high, and if our future warriors persist in refusing the aid of art to supply the defects of nature, it appears likely that the British lion will before long be unable to show his teeth to those who threaten his repose, because "in point of fact," as Cousin Feenix says in *Dombey and Son*, "he will have no teeth to show."

Sir Richard Douglas Powell, who has just received the highest honor which can be conferred on a consulting physician by his brethren here, by being elected President of the Royal College of Physicians of London, is sixty-two years of age. He was a pupil of Sir William Jenner and is a graduate of the University of London. He is regarded as a first-class authority on lung diseases, on which he has written several valuable monographs. He was Physician-in-Ordinary to the late Queen Victoria and is Physician Extraordinary to the present King. He is an example of the best type of consulting physician, and will make an ideal figurehead for the most dignified of our medical institutions. Sir William Broadbent, who ran Sir R. Douglas Powell close on the first vote, has been unsuccessful on several previous occasions. There is a section of the Fellows of the College which looks askance at the part he has taken in the movement for stamping out tuberculosis, as if it were defilement for a physician to be associated with a public effort for the general good?

OUR PHILIPPINE ISLANDS LETTER.

INDIFFERENT ATTENDANCE TO MEDICAL MEETINGS—THE HOSPITAL FOR LEPERS AND CONTAGIOUS DISEASES—CAREFUL SUPERVISION OF THE BOARD OF HEALTH—ENORMOUS INFANT MORTALITY—THE PROLIFEROUS FILIPINO—FILTHY SURROUNDINGS OF THE NATIVE.

To the Editor of the Medical News.

Dear Sir: We were disappointed at both the third and fourth meetings of the Medical Association in not hearing a number of important papers, which, owing to the enforced absence of the authors from Manila, were read by title. One of these was the paper by Dr. Wilkinson, the director of The San Lazaro Hospital. Through the kindness, however, of his first assistant, Dr. Biggar, I was shown everything of interest there. This is the hospital where the insane and those with infectious disease are confined. The building was an old Spanish hospital which has been put in excellent condition and serves its purpose excellently. Here you will be shown those cases of leprosy which have been found in Manila only—there are at present some 280 of these unfortunates. It seems that the effort toward

a general rounding up of all cases of this disease in the islands is progressing slowly, owing to the delay in getting ready the Leper Colony Island; such as there is in Honolulu. Such a segregation for these sufferers is devoutly to be wished. While everything is done for their comfort at San Lazaro, the enforced confinement so much of the time does not lessen, what to the passing observer, seems an absolutely unbearable plight. Dr. Biggar tells me they have been using X-ray on some of the cases and with really remarkable results. I mean that in several instances the elephantiasis of the nose, ears, and face has practically disappeared. Whether this improvement would be permanent he could not say. There is no reason, up to this time, to believe that the X-ray effects any systemic improvement.

It is interesting to note that, for this particular congregation of lepers at least, all of the deaths are due to pulmonary tuberculosis. There are many curious contradictions about this dread disease. Dr. Bigger told me the following history of leprosy in one family; father and mother are healthy, well-to-do, and educated metizos. To these parents were born ten healthy children. In a certain period of years five of these children, that is, two daughters and three sons, became leprous and at present two sons are in the San Lazaro; the other brother and both sisters having died there. The five other children are perfectly well. How five out of the family became infected is not positively known.

From the leper wards we went to the separate pavilions for smallpox, bubonic plague, tetanus, cholera, etc. I was fortunate in being able to see a case of plague, which had been discovered the day before. While there were four cases of this disease in Manila during the ten days of our stay, it must not be supposed that it is any longer a daily occurrence. It is safe to say that the health authorities have this dread scourge entirely under control and, as Dr. McDill said, the occasional case as reported, excites hardly a passing comment. Making its appearance late in 1899 it continued with varying intensity for five years; since 1904 only sporadic cases have appeared from time to time in Manila. I am informed that it had never been transported to any extent in the outlying districts.

This remarkable result is due to the splendid work of the board of health and its officers. The crusade against rats, which so infested Manila, was begun early in the fight and for months and months over thirty thousand rats per month were killed; at the present time upward of twenty thousand is the average. This naturally brings up the question, to what extent are rats, through the medium of fleas, the source of infection. In the first place it is known that it is fleas from the large brown rat only which do infect the human being. It is interesting to note in this immediate connection, that the vegetable organism, the poison of the plague, has been found in the stomach of the flea, but it has not been traced from that organ to and through the ejecting apparatus of the flea. Whatever the rôle played by fleas in the spread of plague, it is generally conceded that there are other sources of infection.

In Circular No. 9,276, issued by the Board of Health, Manila, 1903, the following sources of infection are given: (1) From a previous case. (2) From an infected locality (through skin lesions). (3) From fomites. (4) From rats and fleas, by conveyance. (5) From sputum, urine (not always), feces, sweat (only when skin is infected), and blood (only in late stage, not always) of infected individual. Infection from convalescent case may occur after three weeks, and can after seventy-two days, occasionally.

The health officers did not confine their efforts to the destruction of rats but at once started preventive inoculation on a large scale. In this fight Shigas' serum, prophylactic and curative, has been chiefly used. These serums are made in the Government Laboratory in Manila, and have been used with much satisfaction during these years. In over ten thousand inoculations in Manila in the last three years, not one has resulted unfavorably. This protection has been especially marked among the Chinese. Formerly the largest number of cases were among the Chinese but owing to thorough and repeated prophylactic inoculation they are less often affected than other inhabitants. Dr. Marshall tells me that this happy result has been greatly aided by the cooperation of the great Chinese societies. Speaking of the Chinese residents of Manila, of which there are some twenty-two thousand, I am reminded of a very interesting paper read at the meeting by Dr. Tee Han Kee, on "Chinese Medicine." Dr. Kee is associated with the board of health. In this paper he told us that modern medicine was slowly, very slowly indeed, but none the less surely, making headway in his native land. In Manila I am credibly informed that these conservative folk employ the regular licensed physicians, greatly to the exclusion of their own herb doctors.

There has been no cholera in Manila since February, 1904 (or in the Provinces since April of that year). From the date of its appearance in March, 1902, to April, two years later, there were in Manila 5,581 cases with 4,386 deaths, and in the provinces (where by the way it did not develop until a month later) 160,671 cases with 105,075 fatal.

The extraordinary and successful efforts of the Board of Health in stamping out this dread disease deserve the highest meed of praise. Dr. C. E. Carter, Commissioner of Public Health, speaking in general of cholera, its prevention and extinction, gave it as his opinion that quarantine and also detention camps were of little if any use; the epidemic will cease when material is used up; the poor must have special attention; the naked truth should be told as soon as cases appear; no treatment is satisfactory, though intestinal antisepsis promises well; all water should be boiled and no uncooked food indulged in; and, finally, the stomach should be kept acid by the drinking of lemonade, lime juice or water containing a little diluted hydrochloric acid, since cholera spirilla cannot live in an acid medium. The water supply should be carefully guarded and the drains, latrines, cesspools and any filthy localities cleaned and disinfected.

With reference to "Protective Inoculation Against Asiatic Cholera," Dr. Richard P. Strong, the Director of the Biological Laboratory, Manila, in a most exhaustive study of the question (see Circular 20,230, Bureau of Government Laboratories), says, "By the subcutaneous injection of the cholera prophylactic an excellent cholera immune serum can be obtained in human beings . . . however the question arises . . . are they really immune to Asiatic cholera?" In his opinion, experiments upon animals cannot satisfactorily answer this question, and the answer can be given only by a practical observation of the human beings inoculated with the serum during a severe and general epidemic. Quoting the work of Haffkine, in India, and of Muraka, of Japan, he says, . . . "it would appear that simply by the injection of a small amount of the killed organisms a certain degree of immunity against the natural mode of infection is acquired."

Dr. Strong concludes his most important contribution as follows: "By the autolytic digestion of care-

fully killed cholera spirilla in an aqueous fluid, the receptors become separated from the bacterial cells and may be filtered off in solution . . . the subcutaneous injection into man of such free receptors is . . . free from any danger and produces only slight general reaction and . . . hence the method is a practical one for producing a cholera immune serum in man."

This is indeed a consummation devoutly to be wished. A prophylactic serum for this terrible enemy of man would seem to be in sight.

In the San Lazaro Hospital were but two cases of smallpox. But they served to call attention again to the splendid work done by the Board of Health in limiting this disease to a few sporadic cases a month. Inspection, vaccination and revaccination are done in the most thorough way; hundreds of thousands of vaccinations being done each year. The card system of registration and identification, introduced, I understand, by Dr. Marshall, could not be improved upon.

After viewing several cases of beriberi, which is not looked upon with alarm in Manila, and which seems quite amenable to treatment, we drove to the municipal hospital for the treatment of women of the town who have become infected with venereal disease. This is a most interesting solution of this wretched and vexed question and will be described in my next letter.

Another subject, which has been giving those in charge of the health of Manila and these islands much hard work, is the fearfully high infant mortality; taking the figures for last October, we find that of the total of deaths, 1,093, not less than 642 were infants under one year. The rate is always between 60 per cent. and 70 per cent.

To the callous looker-on this really appears a blessing in disguise; the Filipinos are amazingly productive and the men, so Dr. Carter tells me, bestially sensual. Of a total of 740 births reported in Manila for last October, no less than 718 were Filipinos. I said "a blessing in disguise." It is all very well to prate of "The Islands for the Filipinos," but if civilization is ever to reign here it will, through the preponderance, and a mighty preponderance at that, of the native-born American; so that, while a high infant mortality may not be encouraged on moral and esthetic grounds, it certainly may, for economic reasons and because it means the greatest good of the greatest number.

However, like real good Christians, the health officers are active in trying to better the conditions under which the Filipino baby is born and by which it is surrounded. They are telling the mothers not to treat the cord with "ashes or brown paper," experience having shown that such practices are the great source of tetanus, erysipelas, septicemia, etc.—diseases which carry off so many children in the first thirty days. They are trying to teach the necessity of cleanliness (a somewhat vain endeavor your critic would asseverate); they issued a list of instructions to prospective mothers of future Aguinaldos, in which they are told: "Under no conditions must the baby be allowed to live, as is the custom in towns and barrios, with the animal in the house." Apropos of this habit of the mothers of future rulers of this land, a pamphlet before me adds: "In many places, the pig, the dog, and the chickens form a part of the household from nightfall to daybreak."

The overworked Board of Health tells the mother that "it is barbarous and pernicious, the practice of applying to the child the shell of the cocoanut sharpened and heated red hot, as is so frequently done to overcome convulsions." . . . "By all means avoid the nasty (I do not think the Filipino has any such word in his language) custom of rubbing the vaccination sore with 'patis' of fish broth or with the juice of tomatoes, etc." . . . "Juices, sirops and decoctions of plants, so commonly used, must be avoided." And finally, mothers are implored "to forever desist from the custom, inveterate in the Philippines, of prematurely feeding the child with inappropriate food, as rice, sauces and broths, sweets, and mixed dishes, fruits and bits of meat, and food previouly masticated by adults."

And here we leave this important matter. I have given you the above quotation to show about how far we have not brought these people in the advance to Godliness through cleanliness.

Manila, March 1, 1905.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held February 8, 1905.

SYMPOSIUM ON GASTRIC ULCER.

The President, James M. Anders, M.D., in the Chair.

Etiology and Pathology.—Dr. Joseph McFarland concluded that two factors, one incidental and one essential, are engaged in the etiology of gastric ulcer. The incidental factor is the gastric juice, containing the proteolytic serum without which the formation of gastric ulcer is impossible. The essential factor is a loss in the natural immunity of a circumscribed portion of the gastric mucous membrane, in consequence of malnutrition, resulting from thrombosis, embolism, traumatic injury and the other obstructions of the minute nutrient vessels in the gastric wall, or their infections or toxic agents circulating in these vessels. The relation of anemia to gastric ulcer, he thinks, quite as probably secondary and primary, that is, instead of the anemia being the cause of the disease, he thinks it quite as likely to be its effect.

Incidence in Philadelphia.—Dr. Albert Philip Francine analyzed the post-mortem records of the Philadelphia Hospital for ten years from January 1, 1893, to December, 1903, inclusive, and based the following conclusions upon the result of his studies: Total number of autopsies in ten years, 2,830. Those in association with chronic nephritis, 16 gastric and 1 duodenal; with tuberculosis, miliary, or of the lungs, 11 gastric and 1 duodenal; in association with both tuberculosis and nephritis, 3 gastric; with chronic bronchitis 1 gastric; with pneumonia 1 gastric; atelectasis of lung, 1 both gastric and duodenal; with carcinoma of stomach or elsewhere, 4 gastric; with fatty heart, 1 both gastric and duodenal; with enterocolitis in infants, 2, both gastric. In 20 out of 42 cases, or 0.47 per cent., the ulcers were multiple. Mayo says that in 20 per cent. of cases more than one ulcer is present. The sexes in Dr. Francine's series were equally divided. The average age for males, forty-three years; for the females, the same. Welch found forty per cent. in males and sixty per cent. in females. The largest number of cases in his series occurred in males between twenty and thirty years. In Dr. Francine's series the greatest number of cases occurred in males (5) between fifty and sixty years and in females (5) between forty and fifty years. Three of the cases were in infants, ten, twenty and thirty-six months old. Dr. Osler mentions a case reported by Goodhart in an infant thirty hours old. The largest ulcer in Dr. Francine's series was 9 cm. to 10 cm. by 8 cm. to 10 cm. He quoted Dr. Joseph Walsh, late Pathologist to the Henry Phipps Institute, as saying that

during his services in 1903, that there were fifty-two autopsies on those dead of tuberculosis and that in one case he found numerous small superficial ulcers in the stomach. In the service of the following year, of fifty-five autopsies there were no instance of gastric or duodenal ulcer.

Symptomatology and Diagnosis.—Dr. Campbell P. Howard, of Baltimore (by invitation), read a paper upon this feature of the subject. The mode of onset in the majority of cases, he said, is gradual and insidious. In the smaller group hematemesis and perforation are sudden. In acute gastric ulcer blood is vomited. In the chronic form, pain, vomiting and hematemesis are cardinal symptoms. In every of gastric ulcer there is some hemorrhage, though it may not appear for months or years after the onset. The physical examination is negative in many complicated cases, except that tenderness is present. The most frequent secondary complications are hypertrophy of the pylorus, adhesions and inverted viscera. Dilatation of the stomach in an ulcer case, he said, signifies pyloric obstruction. Few diseases present more difficulties in diagnosis.

Medical Treatment.—Dr. F. P. Henry presented this part of the subject. That the tendency of gastric ulcer is toward recovery Dr. Henry said is proven by the frequency of characteristic cicatrices in the stomach post mortem. The object of treatment should therefore be to assist Nature, and the most important indication he considers to be rest, both general and local. The latter is best secured by rectal feeding plus bland and nutritious articles of diet. Opium and its preparations per os are conducive to rest by allaying pain and peristalsis and blunting appetite. Hyperacidity should be counteracted by lime water and bismuth rather than by sodium bi-carbonate which, on account of the evolution of gas attendant on its administrations might distend the stomach to a dangerous extent. Milk, raw, boiled or peptonized, he considers the best article of diet in early stages. Buttermilk is sometimes an excellent succedaneum. The information of tough coagula may be prevented by mingling the milk with a little well-boiled flour or arrowroot. Medicinal treatment he regards of secondary value to dietetic, but doubtless serviceable. He recommends bismuth subnitrate in large doses suspended in barley water or mucilage. Nitrate of silver he believes to be useless, and calomel injurious and interfering with healing processes. Carlsbad water and Carlsbad salts he finds useful as antacids and laxatives. When chlorosis is present iron albumin prepared extemporaneously by mingling a solution of sesquichloride of iron with "egg water" is recommended. Leube's method of treating gastric ulcer by continuous poulticing was discussed. Leube's statistics founded on 556 cases give a mortality of 2.2 per cent. instead of 13, which is the percentage under ordinary methods. Dr. Henry's method is a modification of Leube's in that he uses opiates which Leube condemns, and nourishes by rectal enemata during the preliminary week of the medical treatment.

Surgical Treatment.—Dr. William L. Rodman considered the surgical treatment of gastric ulcer. This, he stated, resolved itself into treatment of the ulcer itself and of the several complications. He believes that perforation is far more common than is thought. The treatment of hemorrhage is generally medical, but if there is shown a recurring feature the treatment should be surgical. The treatment of stricture or hour-glass stomach is a question of physics and not of chemics and should be generally by operation. Uncomplicated gastric ulcer in the vast majority of instances he believes can be treated by medical means. He referred to the various surgical methods for the treatment of gastric ulcer, and concluded that one should operate only after medical means have been fairly tried for at least four weeks without results. Then the abdomen should be opened, but without any positive conviction of what should be done until the stomach is examined from the pylorus to the cardia, after which the procedure best adapted to the conditions present should be carried out.

Dr. Alfred Stengel agreed with Dr. Howard that it is possible to distinguish between the acute and chronic form of ulcer, but believed that this is a clinical rather than a pathological differentiation. Chronic forms of ulcer impress him as being simply of the indolent type, with the same general pathological basis and nature as the acute, but with different local conditions, which cause their different course. Statistics would be much clearer if all the cases were based upon a pathological study after careful discrimination between the different types of ulcers, and erosions, which ought not to be called ulcers. In treatment he agreed with Dr. Henry that gastric ulcer is a medical disease, unless resistance shows that medical treatment will not avail. After a consideration of the principal symptoms of gastric ulcer hematemesis pain and dyspeptic disturbance Dr. Stengel believes there is a considerable proportion of cases in which the diagnosis must be in doubt. He thought the frequent association of gastric ulcer with nephritis and tuberculosis, shown by Dr. Francine in the statistics of Blockley, might be accounted for by the character of the patients in that hospital.

Dr. John H. Gibbon believes that many cases of gastric ulcer that recover after operation do so because of the after-treatment, and he agrees with Dr. Stengel that the patient should be fed by the bowel for three weeks. He referred to the fact that often in the presence of gastric symptoms and a palpable tumor in the abdomen there is the belief that malignancy is present and a wrong prognosis is therefore given. In all such cases where there is the slightest question of doubt he advises exploratory operation.

Dr. Lambert Ott found that the administration of 5 grs. of nitrate of silver in 6 ozs. of water, a tablespoonful in a wineglass of water half an hour before meals, gave good results. He does not approve of boiled milk as a dietary, but has accomplished the best results in using as a food milk, as a basis, with various kinds of broth.

Dr. Joseph Sailer said that the rather small percentage of gastric ulcer in this country suggested the possibility of the conditions being overlooked by pathologists. He thinks the most important element in treatment is absolute rest. Reports of different men show practically the same results whether feeding is by the mouth or rectum. Personally he prefers the latter method. After commencing alimentation by the mouth he suggests that olive oil and some of the bland nutriments may be given without harm to the mucous membrane of the stomach. Dilute solutions of protargol through the stomach tube have given a sense of temporary alleviation. He considers that the entire disappearance of symptoms for two or three weeks, with no blood in the stools and the patient on a liberal diet may be accepted as perfectly satisfactory evidence of recovery.

CHICAGO SURGICAL SOCIETY.

Regular Meeting, held February 6, 1905.

Dr. A. K. Steele, M.D., in the Chair.

Anchylosis of the Jaw.—Dr. Emil Ries cited the case of a boy, twenty-one years of age, who was sent to him six months after he had acquired syphilis. The patient's syphilis was, at first, treated by an irregular practitioner. The boy soon began to have ulceration of the mouth, although he did not remember ever having been salivated, and it was not known that this practitioner gave mercury. Ulceration of the mouth began, and when the boy consulted a regular practitioner, he was in a bad condition. His tongue was greatly swollen; he could not close his mouth on account of ulcerations; he lost almost all of his teeth on the left side; and large pieces of bone began to come out. One day a vere severe hemorrhage from the mouth occurred, which the doctor had difficulty in controlling. Under antisyphilitic treatment his condition improved, so that the tongue retired into the mouth and the patient was able to close the mouth. Very soon, however, he found that while before he was unable to close his mouth, now he was unable to open it. The teeth on the left side having largely fallen out, he was able to feed himself on that side with a spoon, taking liquid food only. Part of the liquid food always escaped through the nose, so that feeding was rather difficult. At first, nutrition was very poor; patient decreased in weight rapidly, but gained under antisyphilitic treatment and careful feeding, so that when he came to Chicago in November he was in fairly good general health. In October, when the speaker first saw him, he still had syphilitic ulcerations in the mouth, which did not heal quickly, and directions were given for specific treatment. When he returned in November, he could not move the lower jaw; half of the horizontal ramus on the left side had disappeared, with the angle of the jaw. Between the condyloid process and the jaw there was only ligamentous union by cicatricial tissue. The median line of the lower jaw corresponded vertically with the left nasolabial fold, the jaw being pulled over to the left side. There was a perforation of the hard palate, with perforation of the septum. There were condylomata on the penis; the chancre was still hard; the glands were enlarged all over the body; but there were no mucous patches; no eruption on the skin. It seemed that the boy was as much troubled by the bad mutilation of his face in consequence of the absence of the angle of the jaw as by his inability to open his mouth. He desired very much to have something done for the caving-in of the left side of his face, and in determining upon the method to be followed in the operation, the speaker took that into account, and instead of making an incision along the zygoma, as would ordinarily be practised, he decided to do an operation which would permit him to insert a sufficient artificial support for his face to make the left side correspond more to the other side. He intended to insert sufficient ivory pegs to give the appearance of a natural jaw. He, therefore, made an incision below the horizontal ramus, or where it ought to have been, and continued it up between the ascending ramus; then dissected his way down to the bone and to the cicatricial tissue, and dissected out the facial nerve and its branches carefully, so as to avoid wounding them. After they had been dissected out, they could be seen beautifully; he raised these parts forward, and on the left side tried to remove the condyloid process, which was firmly adherent to the skull. The coranoid process was buried in scar tissue, with the scar tissue extending down into the mucous membrane of the mouth, so that he was in considerable danger of opening into the month, an occurrence which he was particularly anxious to avoid to guard against infection of the wound. He succeeded in avoiding opening into the mouth, and could resect with the chisel the condyloid process. The coranoid process, which fastened the rest of the jaw to the scar tissue, he dissected out subperiosteally. Then he expected the jaw to be fairly movable. It was not. It was just as solid as it was before. Even after the condyloid process had been removed completely, there was no possibility of moving the jaw. He therefore decided that it would be necessary to operate on the other side also, and he sutured the pterygoid muscle out between the skull and the external soft parts, so as to avoid new bony formation between the base of the skull and the jaw. He then proceeded in the same way on the right side, but it was sufficient to resect the condyloid process, as the coranoid process had not interfered sufficiently with the motion, and he again sutured the pterygoid muscle out between the skull and the rest of the descending rams of the jaw. On the left side, after having finished the dissection, he drilled holes into the jaw and inserted ivory pegs. At first, he had two pegs ready, but found that if he drilled a sufficiently good hold for the second peg, he would run considerable risk of getting into the alveolar process, and of opening into the mouth, and one could not expect pegs to hold for any length of time if they were in contact with the mouth cavity in any way. He left one peg in place, which he could insert into the horizontal ramus, and which healed in beautifully. The wounds were closed completely by sutures, without drainage, and healed by primary union. At the end of the operation it was possible to open the mouth sufficiently to insert a good-sized piece of bread, or anything of that kind, so that the boy would be able to eat solid food. In the after-treatment he insisted on early and frequent passive motion; then he began to teach the boy to speak again. His speech, when he came to him, was mumbling, very indistinct, in consequence of the formation of scar tissue in his mouth, and he actually had to relearn to speak. At the end of six weeks' treatment, his mouth was clean and all right; the wounds were all healed; his mobility was very fair, and he proceeded to have a dentist insert a plate, first of all covering the opening into his nose, the perforation of the hard palate, and secondly, to enable him to chew. He was then able to chew food, if it was not too hard, and when he left the hospital, about eight weeks after the operation, he was in good condition, and his face looked pretty natural. There was still a little caving in on the left side, but the ivory peg held up the skin so well that there was a marked apparent angle of the jaw, and the deep cavity which had existed, at first, on the left side had disappeared. Now, the peg had healed in he thought it would be an easy matter to build up with paraffin the side of the face, as there was something to build up on. The patient was going to return soon to have some more dental work done, and at that time the speaker expected to inject some paraffin. He would have preferred to have discussed the case when he had the boy present to show him to the members, but inasmuch as he had been called upon unexpectedly to report some cases, he thought this one would be of interest to the Society.

Dr. Ries also reported at length a case of extensive rectal strictures, and described the operations that were performed.

Dr. S. C. Plummer presented a case of stricture of the esophagus following typhoid fever; also a case of colloid carcinoma of the cecum.

Skiagraphs of Stone in the Kidney.—Dr. Joseph F. Smith showed skiagraphs of stone in the kidney. He passed around a print, also a negative, showing several small stones congregated in the lower pole of the kidney, and two larger stones in the upper portion of the pelvis of the kidney. The patient was operated upon and the two larger stones were found above, and the lower mass seen in the skiagraph, which looked somewhat granular, was found to consist of eight or ten separate stones, the size of a small French pea. He exhibited a negative which illustrated an interesting condition. The patient had been under the care of Dr. Billings, and it was suspected that the man had a tumor in the iliac fossa. A thickening could be felt in the region of the iliac fossa on the right side; the man had a great deal of pain; he was losing weight rapidly, and it was suggested that a skiagraph be taken of this region. On examining the iliac fossa on the right side, a circular area, two and a half inches in diameter, could be seen, which was very irregular, showing that the bone was partly excavated in an irregular manner, and a rather definitely outlined tumor probably of periosteal origin in the iliac fossa. The skiagraph showed the circumscribed nature of the tumor. Recently a patient was sent to him for a kidney stone examination. The man had been in perfect health, so far as was known, and had applied for life insurance. The life insurance examiner discovered a large amount of pus and some blood in the urine. The man had no symptoms whatever, and was surprised to be rejected for life insurance. He applied to his family physician, who took him to Dr. Kreissl, who catheterized his ureters and found blood and pus on the right side, with perfectly clear, normal urine on the left side. The patient came to Dr. Smith, who made a skiagraph of the kidney, and in two or three different skiagraphs the same shadow was seen which appeared to be a very large, irregular stone in the right kidney. This case was interesting from the standpoint that the patient had never had any symptoms, and even yet had none, and he was not aware of the fact that he had any trouble on this side. The condition was discovered accidentally.

Sarcoma which had Developed from a Uterine Myoma.—Dr. E. C. Dudley showed a gross specimen, and some slides of this case, saying it was generally understood that sarcoma might develop from any of the following structures: (1) The interglandular connective tissue of the endometrium; (2) the intermuscular connective tissue of the myometrium; (3) the walls of the blood vessels; (4) perivascular connective tissue; (5) the muscle cells; (6) any of the structures of a uterine myoma. It was evident from the gross appearpearances of the specimen that the sarcoma had developed from a uterine myoma. Before operation the sarcomatous structure filled the uterine cavity, and felt on intra-uterine palpation like a retained placenta. In fact, was so pronounced by two excellent diagnosticians. Microscopic sections taken from various parts of the growth showed it to be a small round and small spindle-cell sarcoma, the sarcomatous cells being substantially of the same size as the red corpuscles. The interesting features of this specimen were: (1) A rather sharp demarcation betwen the sarcomatous cells and the myomatous cells. (2) Presence in many parts of the sarcoma of clearly defined blood vessel walls. (3) The transition in the character of the blood vessels from those which have walls to those which are mere blood spaces. In this case complete abdominal hysterectomy was performed November 17, 1904. There was nothing unusual in the operation or in the subsequent recovery of the patient.

Dr. D. N. Eisendrath said as to the question raised by Dr. Smith regarding reflex pain in the opposite kidney, and of patients walking about with a pyelitis from stone in the kidney, without having any symptoms or being conscious of it, he had had considerable experience in this direction. A patient whom he had under observation at the present time had had a pyelitis to his knowledge for the past five years; but whether there was a stone present in the kidney now or not, he was unable to say. Pictures were taken originally as the patient had symptoms of pain in the left kidney seven years ago. Skiagraphs were taken at that time, and they failed to show any stone. This failure was ascribed to the fact that they were probably uric acid stones, and did not give a sufficiently deep shadow. Shortly after this the patient passed from the right or opposite kidney a calculus about the size almost of an almond, and in spite of this he continued to have pus in the urine. He examined his urine with a segregator and found that pus came apparently from the side opposite to that of which the patient complained of pain. X-ray pictures were taken again, and failed to show stone. The patient had had no pain since that time, but had passed large quantities of pus ever since. He tried to induce the patient to have an exploratory incision made, but consent could not be had.

Dr. L. A. Greensfelder mentioned a case in which the X-ray plates showed the positive shadow of a stone. The patient not only had a stone, as shown by the skiagraphs, but all the clinical manifestations of stone in the kidney. Finally, she was operated upon, the kidney incised, and explored with the finger to the pelvis, but no stone found, although both poles of the kidney were carefully needled. In passing a catheter through the kidney from the ureter toward the bladder, the catheter would stick at a certain point and could not be passed any farther until finally, after trying it eight or ten times, using different sized catheters, it pushed by. The kidney was sutured, the lumbar wound closed without drainage, and the patient's symptoms subsided, although a small quantity of pus and a little blood were still seen in the urine.

Dr. Smith stated that all of the cases, the negatives of which he had exhibited, showing stones in the kidney, had been operated upon and stones found in the kidney at the operation.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, held February 1, 1905.

The President, Arthur V. Meigs, M.D., in the Chair.

Recent Advances in the Technic of Roentgen Therapy.—Dr. Charles Lester Leonard read a paper by this title. In considering the apparently antagonistic results published in reference to Roentgen therapy he said it must be remembered that positive evidence is more valuable than negative. Cures, he said, could not be claimed as yet, but an inhibitory action has been absolutely demonstrated. The apparent variation in results he explained by variations in technic and experience of the operator. Effective dosage he considers difficult, because it must be strong enough to injure pathologic cells and yet not too strong for normal tissues. In addition, varying qualities of Roentgen ray produce different effects, and the quality must be adapted to the individual lesion. The physiologic action is stimulant and alterative. In large doses it stimulates the autolytic ferments within pathologic cells, which results in their dissolution and absorption. The difficulty in administration, Dr. Leonard pointed out, lies not only

in adapting the proper quality of ray and dose to the individual lesion to be treated, but also in the fact that the clinician must know how to produce the dose with a complicated mechanism, and must be able to recognize when the right quality and quantity are being employed by their clinical effects. While any dose and any technic will produce some effects, exact dosage is essential to the efficient employment in difficult cases, and as with all other powerful remedies clinical experience in adapting the dose to the individual patient counts in the final result. Increased knowledge and improved technic have recently made marked advances in treatment possible and promise greater efficiency.

Treatment of Non-Malignant Diseases by Roentgen Ray.—Dr. Russell H. Boggs, of Pittsburg (by invitation), presented this paper. He called attention to the necessity of distinguishing between the non-malignant diseases which should, and those which should not, be treated by the X-ray. While the continual cry of technic may become tiresome to some who think the subject can be mastered in a few days or a couple of months, he said that the method of application of the rays and the judgment of the operator accounts largely for successful or unsuccessful work. He believes it to be just as essential to administer a therapeutic dose when applying Roentgen rays as it is when prescribing powerful drugs. It should be remembered that it is not so much the X-ray that cures as the judgment with which it is employed. He considers the X-ray one of the best therapeutic agents known for the treatment of acne and many other skin diseases, but he thinks it is not necessary in many instances to treat the trivial and less obstinate cases by this method, since cures may be effected with other treatment causing less inconvenience to the patient. For the treatment of lupus he regards the X-ray, supplemented by Finsen light, the most efficient therapeutic agent. He also considers the X-ray the most efficient treatment for tubercular glands, Hodgkin's disease and selected cases of goitre.

X-ray Treatment of Malignant Growths.—Dr. Ennion G. Williams, of Richmond, Va. (by invitation), read the above paper. He said that the results of the practical use of the ray as reported by the different operators have differed greatly; that the general profession had been misled by the overenthusiastic as well as by the pessimistic operators, so that the true value of the ray has not yet been found out. To determine the therapeutic value of the ray, Dr. Williams said it was necessary to consider first the factors concerned in the production and variation of the X-ray and the methods of the application in treatment; secondly, the histological changes due to the X-ray, and, thirdly, the nature and location of the growth to be treated. The tissues most influenced by the ray, he observed, are those having a large proportion of cells whose vital processes are very active, such tissues as are found chiefly in malignant tumors, carcinoma and sarcomas. Benign tumors, composed largely of intercellular substance with a small proportion of cells not actively proliferating, are, therefore, only slightly or not at all influenced by the ray. From his observations he concludes that the prognosis depends upon the character of the growths and upon their accessibility to the proper quantity of radiant energy. He believes that the ray is indicated in superficial growths. For deep growths, until there can be shown more uniformly good results, radical surgical procedures should be recommended, to be followed by sufficient X-ray exposure to destroy malignant cells several inches from the surface. Inoperable cases should be treated, because of remarkable results, and relief of pain which have been noted.

Dr. George C. Johnston, in opening the discussion of the papers said he believed the time had come to make inquiry concerning the claims of the X-ray as a remedial agent. Many of the claims put forth he attributed to overenthusiasm and inexperience. On the other hand, he said, there is a mass of evidence put forth by some of the best men of the profession, men of age, experience and mature judgment whose opinions are worthy of acceptance. The success or failure in the application of the agent, as in any other agent, depends upon the dose, and the dose of the X-ray, he said, was composed of several factors: (1) The length of time the agent is allowed to act; (2) the distance from the source of the ray to the patient; and (3) the degree of vacuum of the tube emitting the Roentgen ray. The third factor, he remarked, is incapable of any accurate measurement short of actual observation of the radiation itself. Another factor in dosage is penetration, and this must be adapted to the depth it is desired to reach. Since some tubes produce a burn easily Dr. Johnston advises beginners to test every tube in radiographic work before using them on a patient. This trial test might cost the operator fifty cents; if tested on the patient, possibly $50,000, if the operator had it. In radiographic work the X-ray man must have a certain technic, with every detail of which he must be familiar. In radiotherapeutic work he must have a technic more exact and capable of immediate variation to suit individual cases. Dr. Johnston's position is that the legitimate X-ray man does not consider himself the successor of the obsolete surgeon, but that he is proud to be accorded the position of qualified assistant to the surgeon, believing that he has at his command an agent which will afford the surgeon better results in his malignant cases. A postoperative radiation he believes is frequently effective in removing a possible foci of disease, and he has demonstrated to his own satisfaction its power of inhibiting the growth of malignant tissue. The treatment of postoperative radiation should not be left to an assistant or nurse, but be under the charge of a thoroughly qualified X-ray operator. The future of malignancy, Dr. Johnston believes, depends upon the general practitioner, because he sees the cases first. Personally, Dr. Johnston finds that each month he has more of the early cases of cancer, as cancer of the breast, sent to him for treatment. His recommendation in such cases is a Halsted operation and radiotherapy to prevent recurrence. He has cases *apparently* cured by this method, which remain so. He prefers to call them cases of inhibition, more or less permanent, with the hope that they will remain permanent. The need of X-ray workers, he said, is the cooperation of the surgeons and pathologists. As soon as all work together in harmony he believes that malignancy and other diseases will present a brighter future.

Dr. John B. Shober, in the discussion, said that in his experience with X-ray work he had seen mostly the cases of malignant disease in women, and in six or seven cases of inoperable carcinoma of the cervix he had noted the inhibitory action of the agent. In one case of carcinoma following hysterectomy for carcinoma of the uterus, treated by the X-ray and radium the growth, which was the size of an English walnut, disappeared in the course of ten weeks and there was no sign of recurrence. In a case of carcinoma of the breast in which the patient had positively refused operation, Dr. Shober undertook treatment by the X-ray, with the understanding that the patient would consent to operation if the growth developed under treatment. The

growth increased in size but softened, then diminished in size, and there ultimately remained no sign, except a small induration, possibly the result of an accumulation of fibrous tissue, in the site of the disease.

Dr. George Erety Shoemaker considered that after the surgeon's work was finished, he owes the duty to his patient of having X-ray applied for a definite time. From his own experience with cancer of the uterus he would advise, first the cautery, after that surgical excision of the part, including the cautery scar, and after that the X-ray. This treatment, he thought, offered the most hope in a field which has been discouraging.

Dr. W. S. Newcomet referred to the value of the X-ray as evidenced in desperate cases which react and get well. He showed on the screen the picture of a case of trachoma in a girl of about sixteen years which had existed since the age of three months. She had been able to count fingers only in the light. As the result of the X-ray treatment she can now see a distance of two or three squares.

Dr. Leonard, in closing, said that the papers of the evening showed the results achieved. Since the development of the technic he feels that much more may be expected from the treatment, and he believes that the furture is brighter than the past in regard to the value of the X-ray. An agent which shows itself capable of inhibiting a growth, should be carefully studied, not only by the X-ray men, but by the general profession.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

Regular Meeting, held February 17, 1905.

The Infecting Agent in Gonorrhea.—Dr. Young, in opening a symposium on gonorrhea, spoke first of the history of the subject referring to the early mention of the disease and of its confusion with syphilis from the fifteenth century until the experimental work of Hunter and Ricord, the pioneer nonidentists. Neisser's discovery in 1870 and successful cultures of the organisms by Bumm in 1887 closed the question of the origin of the disease. Columnar epithelium only was at first thought susceptible to gonorrheal invasion, but gradually the organism was isolated from joints, tendons, peritoneum, etc.

When Is Gonorrhea Cured?—This was said to be a question difficult to answer. It could not be settled by the absence of gonococci; but a patient should only be dismissed as marriageable when the urine is free from pus, and prostatic and vesicular secretion contained no leucocytes.

Gynecological Aspect.—Dr. Hunner dealt with this phase of the question. Stenosis of the vulva might, he said, be a serious result of the disease. Stricture of the urethra was commoner than supposed; and irritable bladder with trigonitis might be due to the gonococcus. Topical treatment of this condition was fully satisfactory. For the leucorrhea due to cervical infection radical incisions in the cervix with a Paquelin cautery were useful. Gonorrheal pus tubes were treated expectantly oftener now than formerly. Removal sometimes led to infection of the opposite side and often the remaining pelvic tissues were extremely tender after operation. Sudden onset, rapid progression and rapid abatement were characteristic of gonorrheal peritonitis. These features together with the appearance shortly after marriage or near the menstrual period, presence of painful and frequent micturition, and the presence of vaginal discharge would make the diagnosis.

Medical Features.—The organisms, Dr. Thayer said, probably did not produce a soluble toxin, but a toxin associated with the bacterial bodies. The disease might be spread by contiguity, *e.g.*, ophthalmia and metastasis might take place by blood or lymph stream. The inguinal bubo was a good example of the latter, endocarditis of the former. Pericarditis due to gonorrhea has occurred; but endocarditis is by far the commonest cardiac complication. The condition is found in a gonorrheal septicemia, but the actual heart change may be due to a secondary invader for which the gonococcus has prepared the way.

Ophthalmological Features.—The Credé prophylaxis, Dr. Wood said, had reduced the frequency of gonorrhea of the eye from 7½ to ½ per cent. in the Leipzig hospital, and gonorrheal conjunctivitis was both preventable and curable. Disinfection of the maternal genitalia and simple irrigation of the infant's eyes was used as a routine in the Jefferson Hospital, Philadelphia; and Dr. Wood described the methods of other clinics, detailing the results and reaching the conclusion that the practice of Standish of Boston (boric irrigation, vaselin on the lids, instillations of protargol or argyrol and *no wiping*) was as good as any for the treatment of the condition. Cold applications relieved pain in early stages, but did nothing else; and silver nitrate, while quite efficient, was also quite irritating. Dr. Carroll reported a case of true metastatic gonorrheal conjunctivitis, and Dr. Baer referred to several cases of "tender heel" he had had recently due to gonorrheal invasion of the plantor fascia and periosteum, and in some cases causing an exostosis. From the foot of one patient the organism was isolated.

Regular Meeting, held March 3, 1905.

Symposium on Typhoid Fever.—Dr. Fulton opened the discussion with a paper on the etiology and spread of the disease. The disease was, he said, prevalent throughout this country as was also the "malarial delusion," which led to so many mistaken mortality returns. Even in communities where malaria did not exist typhoid fever was often so diagnosed. In St. Louis, where an effort was made to have this mistake reduced to a minimum, there was a large increase in the number of typhoid cases due to their being taken from the malarial statistics on careful diagnosis. The morbidity statistics were said to be not improving much, and in the rural districts, where laboratory conveniences were not always available, a good many wrong reports were made. In Maryland many sudoral and many afebrile typhoid are reported. The incidence of typhoid bears a direct ratio to the number of people living at any given age period—and this holds even for advanced years. The mortality from the disease throughout the United States is in the rural districts about 2½ times that of the cities. In the country milk is one of the most important sources of infection; while the water supply is most important for cities. There are few satisfactory filtration plants; and even the best may be impaired by freezing and allow an outbreak—as occurred in Altoona in 1893.

The Prevention of Typhoid.—Dr. Cole began his paper by reading quotations from an article by Budd, in the *Lancet*, for 1856. This writer recognized the fact that typhoid fever was contagious, gave a good account of an epidemic in Devon, held that all the emanations were infectious, but especially the intestinal, and said that it lay entirely within our power

to prevent epidemics by caring for the stools. But in spite of true views held so long ago the disease is still quite prevalent; and the reason is that the mortality of the disease is so low. The facts of contagion are similar to those of cholera; but this disease has been stamped out because of its horrible nature. We have, however, become used to typhoid; it does not frighten us: and we expect a few cases. Vaccination, and the care of the water supply have been the chief directions which prophylaxis has taken; but the most important thing is to kill the organisms when they leave the patient, who is as much a menace to the community as a scarlet fever case. The possibility of contact infection must not be overlooked. In certain German communities the disease has been stamped out by the work of Koch along these lines. Milk of lime is not very efficacious for sterilization of the stools: the organisms will grow in it, and besides it is soon changed, in the air, to innocuous calcium carbonate.

The Diagnosis.—Dr. Donovan spoke of the early features of the disease—before the laboratory findings are of much use. A fever, particularly occurring in a young person (especially in August and September) should always be suspected. The chief early symptoms were headache, loss of appetite, lack of coincidence of pulse and temperature, languor, pallor and tremulousness. Epistaxis, bronchitis, and absence of leucocytosis were usually seen; but splenic enlargement was not common in the Baltimore cases. Abdominal tenderness, mild tympanites and rose spots would complete the diagnosis.

The Treatment.—Dr. Atkinson said that as the proportion of recoveries increases confidence in specific remedies decreases. A great majority of cases recover if let alone; some will die under *any* treatment. Between these two classes lies the physician's field, and the treatment being adjuvant rather than antagonistic, the first rule is: Do no harm. A trained nurse is always necessary. It is best to underfeed the patient, rather than overfeed him, and we should not depend too much on one form of diet. The general refrigerant treatment should be used; sponging, if intelligently done, is quite as satisfactory as tubbing. For the diarrhea paregoric and bismuth or lead and opium may be given. For the tympanites it is best to change or even withhold the diet, and the latter alternative is to be chosen when vomiting is present. A daily enema usually controls the constipation, but salt or castor oil may be used. The baths control delirium and nervous symptoms; for insomnia and for coma vigil morphia may be given. Stimulants may be used in the disease but probably they are not strongly indicated. For a failing heart strychnine and not digitalis should be exhibited. Saline infusions are useful if renal insufficiency be present, and are also indicated in profuse hemorrhage, together with applications of ice to the abdomen and hypodermics of ergot.

BOOK REVIEWS.

Toxicology. A Manual for Students and Practitioners. By Edwin Welles Dwight, M.D. Lea Brothers & Company, New York and Philadelphia.

The author has here given in small space a résumé of the important facts concerning the poisonous action of many commonly used compounds.

It makes a convenient summary for those who would not go extensively into the subject, and as such manuals have a distinct sphere of usefulness it can be commended to supply just those purposes for which it was devised.

A Manual of Personal Hygiene. Proper Living upon a Physiologic Basis. By American Authors. Edited by Walter L. Pyle, A.M., M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. Second Edition, Revised and Enlarged. 12mo volume of 441 pages, fully illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

The first edition of Dr. Pyle's "Manual of Personal Hygiene" has been deservedly popular. Each of the contributors, besides lending his name, took the department assigned to him seriously and the result was an effective book. The second edition is likely to be even more popular and, with its added chapters on Domestic Hygiene, on Home Gymnastics, besides an appendix on hydrotherapy, mechanotherapy, thermotherapy and first aid to the injured and in medical emergencies, will prove thoroughly helpful. There is no book that we know that can be recommended so confidently to patients and none which so well realizes the distinction between a medical book for physicians and for those without medical training.

Report of the Commission for the Study and Treatment of Anemia in Porto Rico. Authorized by act of the Legislative Assembly approved February 16, 1904. Respectfully submitted to Hon. Beekman Winthrop, Governor of Porto Rico, December 1, 1904. Bureau of Printing and Supplies, San Juan, P. R.

This government report contains the English and Spanish résumé of the labors of the Commission. It is notable mainly as containing the data on which are founded the conclusions that the anemia of Porto Rico supposed to be due to some specific disease, incident to the climate and soil of the Island, is really nothing more than an anemic condition consequent upon the presence of certain intestinal parasites. As a consequence of this discovery, there seems no doubt now that the disease will be made to disappear promptly under administrative control.

Outlines of Physiological Chemistry. By S. P. Beebe, Ph.D., and B. H. Buxton, M.D. The Macmillan Company, New York.

In 195 pages, small size, the authors have been able to compress the main facts of physiological chemistry, and in so doing have performed a really meritorious task.

It is comparatively an easy matter to write a big book, particularly in physiological chemistry, but to turn out a little one that is at the same time explicit and useful is a matter that deserves congratulation and praise. The work will undoubtedly be found to be admirably adapted to class work.

BOOKS RECEIVED.

Transactions of the American Gynecological Society. Volume 29. 8vo, 495 pages Illustrated. W. J. Dornan, Philadelphia.

In the Year 1800. By Dr. S. W. Kelley. Doctor's Recreation Series. Volume III. 8vo. 421 pages. Illustrated. Saalfield Publishing Co., Akron, Chicago, New York.

Atlas and Epitome of Operative Ophthalmology. By. Dr. O. Haab. Translated by G. E. de Schweinitz. 8vo, 368 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

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ORIGINAL ARTICLES.

RECENT ADVANCES IN OUR KNOWLEDGE OF THE CHEMICAL PROCESSES OF DIGESTION.[1]

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THE development of the modern physiology of digestion is almost coincident with the lifetime of our immediate predecessors. It is true that the doctrines of the older writers, the theories of concoction, putrefaction, trituration, fermentation and maceration, early yielded to the criticism and experimental deductions of Spallanzani, who, before the close of the eighteenth century, gave a firm footing to the chemical theories of to-day. But the really modern formulation of the significance of the digestive changes in the alimentary tract dates from the classic work of Tiedemann and Gmelin[2] published in 1826.

In attempting to appreciate the status of this branch of physiology at that period it is instructive to recall the prize problem announced by the French Academy in 1823. After reference to the inexact and superficial notions prevalent at that time with regard to the phenomena involved in the digestive work of the stomach and intestine, and in recognition of the advances then made in the more accurate analysis of animal and vegetable substances, the following subject was proposed for investigation, namely: "A determination, by a series of chemical and physiological experiments, of the phenomena which occur in the digestive organs during the act of digestion." The competitors were directed to investigate first the chemical or other modifications which the proximate organic principles undergo in the digestive organs, preference being given to those substances, such as gelatin, albumin, sugar, etc., which enter into the composition of the food. Investigation was next to be directed to the aliment itself, with due regard to distinctions between liquid and solid food; and, finally, the experiments were to be extended through "the four classes of vertebrate animals."

The problem presented by this learned body is as comprehensive as the field of digestion; and it involves many questions which still await their final solution. But the mere statement serves to illustrate how rudimentary and inadequate the conception of digestion must have been in the minds of the French scientists who proposed a subject which was well adapted to tax the ability and resources of a host of later investigators.

For several reasons it seems to me not inappropriate to refer to these facts of purely historical interest on this occasion. In an era of great progress and splendid achievements in many branches of medicine, and during a period when new aspects of science are created and developed within a single decade, when the world marvels at the revelations of modern bacteriology, and the possibilities of preventive medicine have revolutionized the modes of living, the members of this Association are liable to forget the enormous strides which that branch of physiology in which their own interests so largely center has made during three-quarters of a century. In the rapid bounds with which the study of digestion is advancing lies the justification for an attempt to present some of the more recent contributions which physiological chemistry has afforded.

From whatever standpoint the chemical processes are reviewed, the enzymes, or soluble ferments, demand the most important place among the active agents involved. The question as to their exact chemical nature is still unsolved; but with the increasing attempts to interpret physiological reactions in the light of the modern physical chemistry instead of the more obscure "vitalistic" conceptions there is a growing tendency to regard enzymes as special types of catalytic agents, colloidal in nature, which are subject to the general laws applicable to the inorganic catalyzers. For the present, however, we are scarcely justified in going further than to direct attention to the marked correspondence between catalysis and enzyme action in respect to the laws of velocity of reaction, optimum temperature and dependence upon external influences. The so-called reversible action of enzymes deserves special notice, since it throws new light upon the synthetic processes in the organism. An enzyme solution, for example, which is able to bring about a partial hydrolysis of fats can, under appropriate conditions, rebuild these fats from their cleavage products.[3] Similar reversions have been obtained with sugar-splitting enzymes. If proteolytic enzymes are found to demonstrate a reversible action and thus to be able to resynthesize proteids from the products of proteolysis, an important addition to our knowledge of anabolism will have been made.[4] It remains to be seen whether all enzymes exhibit reversible actions, before any wide-reaching conclusions can be formulated. We may nevertheless recognize in these observations a step toward a possible explanation of the building-up or assimilative activities in the body.

1 Read before the American Gastro-enterological Association, New York, April 24, 1905.

2 Tiedemann and Gmelin: Die Verdauung nach Versuchen, Heidelberg, 1826.

3 Cf. Kastle and Loevenhart: American Chemical Journal, 1901, 24, 401; Hanriot: Comptes rendus, 132.

4 Cf. Herzog: Zeitschrift für Physiologische Chemie, 1903, 39, 305.

The researches of recent years have taught us that enzymes cooperate in the alimentary digestive processes under conditions which have heretofore not been appreciated, and we have learned to recognize the existence of entirely new types of soluble ferments. It is a current impression that fats are not attacked in the stomach and that the gastric juice is not endowed with lipolytic properties. Although experiments reported years ago from Ludwig's laboratory indicated the possibility of the cleavage of fats in that organ, the results were generally attributed to bacterial action. Vaughan Harley and others found both free fatty acids and soaps in the stomach of the dog after ingestion of milk; and they attributed to the stomach the power to liberate fatty acids from neutral fats, thus explaining in part the relatively slight effect of the removal of the pancreas, with the attendant loss of its fat-splitting enzyme, on the digestion of fats under such experimental conditions. But it is owing to the observations of Volhard,[4] in Riegel's clinic, on human gastric juice that interest has again been aroused with respect to the gastric digestion of fats. He has shown that in emulsions of fat prepared from yolk of egg, cream and various oils, fatty acids are readily liberated by glycerin extracts of the mucosa as well as by the expressed gastric juice. The enzyme itself is very sensitive toward pepsin, hydrochloric acid and heat, and its effective action seems to be conditioned largely by the perfection of the emulsion of the fat. Moreover there is, further, some evidence of the existence of a zymogen of the stomach lipase (or steapsin).

In this connection mention may be made of a peculiar observation which has very lately been reported from Pawlow's laboratory in St. Petersburg by Dr. Boldireff.[5] In dogs with gastric fistulæ he has noted a regurgitation of a mixture of bile, intestinal and pancreatic juices into the stomach under the following conditions, namely: during prolonged hunger; after feeding with various types of fat foods; and with excess of acids in the stomach. Since it is known that fatty foods inhibit markedly the motor and secretory functions of the stomach, this investigator concludes that the digestion of such ingesta in the stomach may be dependent largely upon pancreatic juice which enters in the manner recited. If these observations receive experimental verifications in man, our conceptions regarding the chemical factors in gastric digestion may require modification. In consideration of the great number of examinations of the gastric contents constantly made by clinical observers in all parts of the world it seems unlikely, however, that the occurrence in the human stomach of conditions comparable with those described by Boldireff would have escaped notice.

A further contribution to our knowledge of the digestion of fats is found in Boldireff's[6] discovery of an active fat-splitting enzyme in the intestinal secretion of dogs. If this shall be found to be of universal occurrence in the higher animals, it will, in conjunction with the newly noted observations on fat cleavage in the stomach, serve to explain the relatively good utilization of the fats of milk observed under conditions in which the cooperative action of the pancreatic juice is excluded.

More extensive are the additions lately made to the literature of the proteolytic enzymes. Cohnheim's[7] discovery of *erepsin* deserves detailed mention. This soluble ferment furnished by the small intestine is capable of further splitting the primary cleavage products of proteids,—albumoses and peptones,—into the crystalline nitrogenous derivatives. It does not act on the native proteids (with the exception of casein); and in this respect it differs from trypsin. Though abundant in the mucosa, erepsin is present in the intestinal secretion in small quantity only; and according to Cohnheim its action is presumably exerted upon the products of proteolysis in their slow passage through the epithelial cells during absorption. The occurrence of erepsin in the intestine has repeatedly been confirmed even in man; and Vernon[8] reports that it is present in all animal tissues, and that the various tissue erepsins are to some extent specific. It is perhaps too early to fortell the significance of erepsin for the intestinal digestion of proteids. Experimental data collected by E. Zunz[9] on dogs with ligated pancreatic ducts indicate that it may become a valuable adjunct to trypsin. The lack of pancreatic juice may be more or less completely compensated by a more vigorous intervention of the gastric enzymes on the one hand, and of erepsin on the other.

From what has been said it is evident that suitable provision is made in the alimentary canal for a more complete breaking down of the foodstuffs than was formerly assumed. An increasing acquaintance with new cleavage products of the proteids has led to the finding of these relatively simple compounds at various times among the gastro-intestinal contents. This is, at least, true for the small intestine, the large intestine apparently retaining the function of an organ of absorption as has long been assumed.[10] Beyond the intestinal wall, in the blood and lymph stream, the cleavage products seem for the most part to be missing; and we must ask ourselves whether an extensive disintegration of the complex proteid foodstuffs actually takes place during life, and if so, what is the fate of the fragments formed. The ultimate digestion products do not accumulate in the intestinal walls; and in view

4 The literature is reviewed by Stade: Hofmeister's Beiträge zur chemischen Physiologie, 1903, 3, 292; see also Kastle and Loevenhart: American Chemical Journal, 1901, 24, 491.

5 Boldireff: Zentralblatt für Physiologie, 1904, 18, 475.

6 Boldireff: Zentralblatt für Physiologie, 1904, 18, 460.

7 Cohnheim: Zeitschrift für physiologische Chemie, 1901, 33, 451; 1902, 35, 134; 1902, 36, 13.

8 Vernon: Journal of Physiology, 32, 50.

9 Zunz: Mémoires de l'academie royale de médecine de Belgique, 1904; cf. also Weekers: Archives internationales de physiologie, 1905, 2, 49.

10 Cf. Glaessner: Zeitschrift für klinische Medizin, 1904, 52, 361.

of recent observations of von Bergmann and Langstein[11] it is possible that the failure to discover them in the blood is due to the fact that their disposition and assimilation in the tissues keeps pace with absorption from the intestine. I have said elsewhere that there is something attractive in the theory which assumes a more complete breakdown of the foodstuffs prior to their assimilation into living tissue or circulating blood constituents. It is not difficult to conceive how the organism can construct from these fragments the tissues peculiar to itself and accordingly maintain its chemical integrity, although the ingesta may vary widely in composition—in other words, how foreign flesh- and cereal- and milk-proteids may all give rise to the same serum albumin or muscle globulin. We may look for more definite knowledge on this subject in the near future; it is a fundamental problem in physiology.[12]

It is impossible in this short paper to refer to all the agents which act upon the foodstuffs. That the intestinal juice contains enzymes capable of inverting disaccharides like cane sugar and maltose has received repeated verification in man. Some inversion may even go on in the stomach.[13] The importance of the bile as a solvent for fatty acids and soaps formed in the digestion of fats is now generally admitted, and there is a growing tendency to question the possibility of fat absorption without the intervention of digestive changes. Although the occurrence of a proteolytic enzyme in the bile of man has been reported at various times,[14] the newer animal experiments of Rosenberg[15] confirm the older observations of Voit and Röhmann in denying any important significance to this secretion in the digestion and utilization of proteids.

Two newer features of the chemical physiology of enzymes deserve mention, namely, the question of the specificity of the soluble ferments and the existence of anti-enzymes. In studying the nature of the resistance which intestinal parasites offer to the digestive juice in which they are bathed, Weinland[16] has come to the conclusion that they elaborate specific substances which can inhibit the action of pepsin and trypsin,—anti-enzymes, precipitable, thermolabile, and resembling familiar antibodies in various respects. In extending these observations to a consideration of the resistance which the stomach and intestine offer to the digestive power of the juices contained within them, Weinland[18] further found that extracts of these organs, like extracts of intestinal parasites, check the proteolytic power of pepsin and trypsin in artificial digestion trials. We are thus brought to the recognition of a new factor in the immunity of the body against its own secretions, and its possible bearings on the pathology of the alimentary canal can only be surmised at present. To what extent, for example, is the development of certain types of gastric ulcer (Ulcer rot. ventric.) associated with absence or insufficient content of antipepsin in the gastric cells?

The foregoing observations on anti-enzymes have led to a widespread interest in their phenomena. New illustrations continue to be reported from time to time, and strengthen the probability that we are dealing here with a protective response of peculiar significance. Thus the antitryptic action of blood serum has been pointed out by various investigators,[19] and in conformity with the experience gained in the modern study of toxins, specific anti-enzymes have been developed in animals—an anti-amylase for the blood amylase,[20] antirennin, anti-antirennin[21] and antikinase[22] serving as illustrations. The suggestions involved are too new and incomplete to receive a hasty acceptance; they serve, however, to illustrate a recent tendency in the experimental study of the problems of digestion. Still more inconclusive are the recent attempts to demonstrate a far reaching specificity in the enzymes with which the foodstuffs are brought into contact. Vernon[23] and Pollak[24] have argued for a series of trypsins and erepsins; Ascoli and Bonfanti[25] postulate the existence of a multiplicity of amylolytic enzymes exhibiting noticeable preferences for specific starches. It is evident that these investigators have been influenced by the pluralistic theory of antibodies advocated so vigorously by Ehrlich.

Since the enzymes which have been discussed are the products of the digestive glands we may appropriately pause to consider briefly the development of our ideas of secretion. The purely mechanical conception of physiological processes was exemplified typically in the writings of Ludwig. Physical forces are called into play wherever possible, and filtration and diffusion assumed to explain the essential features of secretion. Ludwig and Claude Bernard in particular emphasized the important rôle of the nervous elements and vascular supply of the secretory glands; to Heidenhain we owe the more comprehensive consideration of an additional factor,—the living cell,—as the intermediator in a large number of physiological changes. He demonstrated the morphological changes which the glands undergo during activity and made it impossible longer to conceive of the secreting structure as simple diffusion membranes. His classic monograph on secretion

11 von Bergmann and Langstein: Hofmeister's Beiträge zur chemischen Physiologie, 1904, 4, 30; cf. also Folin: American Journal of Physiology, 1905, 13, 126.

12 For a recent discussion of the subject see Ahderhalden: Zeitschrift für physiologische Chemie, 1905, 44, 17; Folin: American Journal of Physiology, 1905, 13, 126.

13 Cf. Ferris and Lusk: American Journal of Physiology, 1898, 1, 277: Lusk: ibidem, 1903, 10, xxi; Widdicombe: Journal of Physiology, 1902, 28, 145.

14 Cf. Tschermak: Zentralblatt für Physiologie, 1902, 16, 330.

15 Rosenberg: Engelmann's Archiv für Physiologie, 1901, 528.

16 Weinland: Zeitschrift für Biologie, 1903, 44, 1.

18 Weinland: ibidem, page 45.

19 For the literature see Oppenheimer and Aron: Hofmeister's Beiträge zur chemischen Physiologie, 1903, 4, 279.

20 Cf. Ascoli and Bonfanti: Zeitschrift für physiologische Chemie, 1904, 43, 156.

21 Cf. Korschun: ibidem, 1903, 36, 141.

22 Cf. Dastre and Stassano: Archives internationales de physiologie, 1904, 1, 86.

23 Vernon: Journal of Physiology, 29 et seq.

24 Pollak: Hofmeister's Beiträge zur chemischen Physiologie, 1904, 6, 95.

25 Ascoli and Bonfanti: Zeitschrift für physiologische Chemie, 1904, 43, 156.

marked a new era in the history of this subject. It established the significance of cellular activity in the work of glands, without, however, furnishing an adequate explanation of the forces which the living cell employs. Heidenhain wrote in 1883: "Je mehr sich unsere Kenntnis vertieft hat, desto klarer und zweifeloser ist es geworden, dass in den verschiedenen Absonderungsorganen die wirksamen Apparate ausserordentliche Verschiedenheiten darbieten, so dass wenigstens vorläufig die gemeinschaftlichen Merkmale viel zu allgemeiner Natur sind, um eine allgemeine Theorie der Absonderungsvorgänge zu ermöglichen."[26] The direction of progress in the succeeding twenty years is well indicated by Hofmeister in a recent lecture on the chemical organization of the cell. "Schon heute," he writes, "darf man sagen, dass die Betrachtung der Zelle als eine mit chemischen und physikalisch-chemischen Mitteln arbeitende Maschine nirgends zu Probleme führt welche die Annahme anderer als bekannte Kräfte unvermeidlich erscheinen liessen, und dass, soweit abzusehen, hier für jene Resignation, die sich einmal in einem 'Ignorabimus,' das andere Mal in vitalistischen Schlussfolgerungen äussert, kein Anlass vorliegt."[27]

The most important contribution of the last decade to the physiology of digestion lies in the newer conception of the mechanism and chemical regulation of secretion, and the correlation of the various organs engaged in this part of nutriton. The activity of the salivary glands is excited reflexly according to the nature of the food present in the mouth. The mucous membranes are not indifferent to the composition of the ingested substances and they seem to act as if endowed with discriminating sensibilities for the different foodstuffs. In the case of the gastric juice the evolution of our ideas of its secretion has been singularly progressive. Tiedemann and Gmelin, Beaumont, Bidder and Schmidt, Kühne and even Heidenhain believed to a greater or lesser extent in the possibility of mechanical stimulation of the gastric mucosa. Despite an occasional protest that true gastric juice cannot be obtained by mere contact of inert substances with the stomach membrane, it remained for Pawlow[28] and his coworkers to demonstrate that mechanical irritation either with a rod or feather or spray of sand will evoke the flow of nothing more than an occasional discharge of alkaline mucus. We have been taught from the experiments of the St. Petersburg school to look upon gastric secretion as dependent upon nervous control in which the most important reflex impulses arise in the mouth. According to Pawlow it is not the mechanical act of chewing the food nor even to any extent the chemical make-up of the ingesta which primarily induces the flow of gastric juice, but rather the psychical factor. "Appetit ist Saft!" When once the gastric secretion has been inaugurated by the psychic moment, other stimuli intervene to continue the flow; they are, however, conditioned by the chemical make-up of the food and not by the mere mechanical irritation which their presence in the stomach provokes.

An opportunity has lately been afforded to test in man the conclusions drawn by Pawlow from experiments on dogs. Dr. Hornborg,[29] of Helsingfors, has made a careful study of the conditions inducing secretion in a five-year-old boy in whom a gastric fistula was established because of a complete stricture of the esophagus. The events within the mouth could accordingly only influence the stomach membrane through nervous or circulatory channels. It was observed that the chewing of indifferent substances (like rubber) or of distasteful ones, failed to provoke secretion, whereas the mastication of appetizing foods was followed by a more or less active flow in the empty stomach. A purely psychic secretion, such as Pawlow provoked by exhibition of food, failed to be manifested in the boy. But Hornborg does not regard his trials as conclusive against the psychic theory. Still more recently comparable results on man have been reported by Umber[30] and Bickel.[31]

What are the excitants of pancreatic secretion? It has long been known that the introduction of acid into the duodenum provokes a flow of pancreatic juice. Pawlow supposed that this is due to a nervous reflex. But Popielski and Wertheimer and Lepage demonstrated that the same phenomenon may follow even after exclusion of nervous impulses from without the organ involved; and they in turn attributed the response to a peripheral reflex independent of the control of the central nervous system, but connected with local ganglia. To Bayliss and Starling[32] is due the discovery that we are here dealing with an entirely different and hitherto unrecognized order of phenomena and that the secretion of the pancreas is normally called into play not through extrinsic nervous channels at all, but by a chemical substance which is formed in the mucous membrane of the upper parts of the small intestine under the influence of acid and is carried thence by the blood-stream to the gland cells of the pancreas. The name *secretin* has been given to the substance as not yet completely isolated and identified, which is the specific excitant of the gland. It is obtained by extracting the mucous coat of the intestine with 0.4 per cent. hydrochloric acid. A very small portion of such an extract injected into the circulation suffices to call forth a copious flow of pancreatic juice. The active agent is not the hydrochloric acid, since this alone does not provoke secretion when introduced directly into the blood current. The sub-

26 Heidenhain: Hermann's Handbuch der Physiologie, 5, 4.
27 Hofmeister: Die chemische Organization der Zelle, page 29.
28 Pawlow: The work of the digestive glands.

29 Hornborg: Skandinavisches Archiv für Physiologie, 1904, 15, 209.
30 Umber: Berliner klinische Wochenschrift, 1905, No. 3, 56.
31 Bickel: ibidem, No. 3, 60.
32 An admirable review of the subject is given by Bayliss and Starling in their Croonian Lecture: Proceedings of the Royal Society, 1904, 73, 310. On secretin see the writer's article in the Reference Handbook of the Medical Sciences, edited by A. H. Buck.

stance is not like the ordinary enzymes; its solutions can be boiled and neutralized without undergoing a diminution in activity. Secretin has already been obtained from many animals. It is not specific for the species from which it is prepared; but it is characteristic in origin since it has been impossible to obtain a body resembling secretin from any tissue of the body other than the mucous membrane of the duodenum or jejunum. The action of secretin is not confined to the pancreas; the production of bile is simultaneously stimulated and thus the factors essential for the proper intestinal digestion of the fats in particular are created.

The discovery of secretin marks a noteworthy step in advance in the study of digestion; for it has taught us a new method of chemical regulation of the secretory processes, supplementing or even supplanting the influence of the nervous system. Fleig[33] has lately found that secretin can be developed by contact of soaps, alcohol and other substances with the intestinal mucosa. From his researches it seems as if many of the substances such as alcohol, ether, mustard, chloral, etc., which are known to excite pancreatic secretion may exert a twofold effect, acting in part through the intermediation of the secretin formed—the humoral path—and in part through nervous reflex ways.

We are now more easily enabled to form some synthetic conception of the events which succeed each other in the digestive cycle. The stomach contents with the combined hydrochloric acid and food masses poured into the duodenum through the relaxed pylorus, provoke a flow of pancreatic juice, bile and, according to recent observations of Delezenne and Frouin,[34] of enteric juice. An excessive discharge of acid chyme is prevented by the reflex pyloric mechanism which keeps the sphincter closed so long as the duodenal contents are acid. Meanwhile the discharged acid chyme is becoming neutralized by the flow of alkaline secretions which its very presence has inaugurated. The neutralization is again followed by the removal of pyloric inhibition and a further escape of acid chyme into the gut is permitted. Thus the double mechanism, partly chemical and partly nervous, maintains a correlation of the digestive activities and provides that the gastric contents shall be discharged only in proportion as they can be dealt with by the secretory mechanism of the intestine.

The pancreatic juice, as it is secreted, contains little if any proteolytic enzyme; in its place the zymogen, trypsinogen, is present. To Schepowalnikow,[35] a pupil of Pawlow, is due the distinction of having discovered a remarkable property of the intestinal juice in "activating" trypsinogen; that is, of converting into trypsin the zymogen of the pancreatic juice. This action is due to a peculiar enzyme, enterokinase; and the discovery introduces us to a new class of enzymes, the kinases or zymolysins, capable of activating zymogens. The observations have already been confirmed in man. The pancreatic juice collected by Glaessner[36] directly from a fistula contained no preformed trypsin, but could readily be "activated" by intestinal extracts; and Hamburger and Hekma[37] who had opportunity to collect human intestinal juice, found that it contained enterokinase. The amylolytic and lipolytic enzymes of the pancreas are apparently preformed in the secretions and require no activating agent. As an adjunct to tryptic digestion in the gut the intestinal juice has thus acquired added importance. The possible pathological consequences of an unchecked secretion of both pancreatic and intestinal juices into an empty intestine need only be hinted at. Experimentally, marked erosions have already been produced thereby under appropriate conditions. From another standpoint Popielski[38] has insisted that in disease involving the mucosa of the small intestine where the secretion of an active enteric juice is impossible, the exhibition of food is useless; for it is no longer digested. Under such conditions abstinence from food with simultaneous administration of intestinal sedatives must form the basis for rational treatment.

In addition to these chemical regulations of the secretory processes we have lately learned of the occurrence of remarkable functional adaptations on the part of the digestive glands to the work which they are called upon to accomplish. Maly wrote, in 1881: "The foods which we consume day by day are so varied in respect to odor, color, flavor and composition that it seems as though the processes of digestion are subject to daily change in every individual." Great diversity in the compositon of the digestive secretions of the different animal species was also recognized to exist; but no adequate explanation for these differences was forthcoming so long as the attempt was made to reduce the problem to broad generalizations. Pawlow and his pupils believed that they had discovered a difference in the digestive power of the pancreatic juice corresponding with the digestive demands of the diet used. Their conclusions, though widely quoted, have been called into question seriously by Popielski and Bayliss and Starling. Weinland[39] furnished the first convincing evidence that adaptation of the pancreas does occur. He found that while the pancreas of adult dogs contains no *lactase*—the enzyme capable of splitting up milk-sugar into monosaccharides—the extracts of dogs fed for several days on milk and milk-sugar, invariably contained lactase in considerable amount. When dogs were fed meat with the addition of milk-sugar the pancreas contained lactase, whereas milk-sugar injected subcutaneously for several days was without effect. These facts have been

33 Fleig: Archives internationales de physiologie, 1904, 1, 286.
34 Delezenne and Frouin: Comptes rendus de la société de biologie, 56, 319.
35 Quoted by Pawlow: Das Experiment, etc., Wieshaden, 1900.
36 Glaessner: Zeitschrift für physiologische Chemie, 1904, 40, 478.
37 Hamburger and Hekma: Journal de physiologie, 1904, 4.
38 Popielski: Centralblatt für Physiologie, 1903, 17, 70.
39 Weinland: Zeitschrift für Biologie, 38, 16, 607; 40, 386.

verified by Bainbridge,[40] and the mechanism of the adaptation investigated. The formation of lactase is a specific reaction to lactose and occurs only when the milk-sugar is given by way of the mouth. The enzyme is formed by the pancreas itself and represents a definite adaptation to a milk diet on the part of that gland. The subcutaneous injection of extracts of the intestinal mucous membrane of a milk-fed dog into a biscuit-fed dog causes the pancreas of the latter to produce lactase; this is the only means, apart from a milk diet, by which the pancreas can be made to manufacture lactase. Extracts of the intestinal mucosa of biscuit-fed dogs are ineffective. This adaptation of the pancreas to milk-sugar is carried out by a chemical mechanism. The sugar acts upon the intestinal mucosa to produce some substance which is carried in the blood-stream to the pancreas and stimulates that organ to form lactase. It is interesting to note in this connection that the pancreas of new-born puppies contains no lactase, although the enzyme makes its appearance in a few days after feeding begins.

With this glance at the mechanism by which a digestive gland is adapted to the nature of the food a host of questions are brought into view. What is the nature of the substance which is formed in the mucous membrane? Are other qualitative adaptations of enzymes carried out in similar fashion? To what extent can the glandular functions be altered by radical changes in diet? We may confidently await a satisfactory solution of these related problems; at any rate the observations recorded have made clear "the intimate relation which must exist between the chemical activities of very different organs of the body."[41]

Perhaps the most striking feature of the present development of the study of digestion is the increasing complexity with which the explanation of this function is attended. Yet the unraveling of the details of these interrelated chemical and physiological reactions gives promise of a clearer understanding of the ensemble of processes termed digestion. We are rapidly learning to appreciate the significance and mechanism of the specific responses of the digestive glands under a great diversity of conditions. In 1833 Dr. Beaumont wrote in the preface to his observations on Alexis St. Martin: "The reader will perceive some slight seeming discrepancies, which he may find it difficult to reconcile; but he will recollect that the human machine is endowed with a vitality which modifies its movements in different states of the system, and probably produces some diversity of effects from the same causes." In proportion as these "seeming discrepancies" are found to be characteristic responses to definite conditions and are subjected to rigorous experimental analysis, the physiology of digestion is becoming a more exact science.

40 Bainbridge: Journal of Physiology, 1904, 31, 98.
41 See also Fleig: Archives internationales de physiologie, 1904, 1, 341.

LAENNEC AND HIS STETHOSCOPE.[1]

BY C. N. B. CAMAC, A.B., M.D.,
OF NEW YORK.

I am very glad of this opportunity to meet the members of the Students' Club. I am a firm believer in these undergraduate medical organizations and sincerely hope the time will come, when the length of the medical course shall be such, and the work so ordered that it will be possible for American undergraduates to take up special bits of work in our laboratories, and publish their results.

This is not uncommon abroad and every year we are hearing more and more of instances of good scientific contributions from American undergraduates.

I selected Laennec to speak to you of, not only because he is famous as the inventor of that instrument, the stethoscope, upon which we rely so largely, but also because he himself was an active scientific undergraduate observer and publisher. While a student and but twenty-one years of age he published the results of careful investigations of a case of heart disease, and a series of cases of peritonitis, and even conducted a course of lectures on pathological anatomy. Then too, Laennec stands as the greatest example of an accurate observer and faithful recorder of his observations.

Réné Théophile Hyacinthe Laennec, as was his full name, was born at Quimper in Lower Brittany, February 17, 1781. His first medical influence was from his uncle, Doctor Laennec, of Nantes. After finishing his preliminary education he became the pupil in medicine under this uncle, who was Professor of Medicine and Materia Medica at Nantes. These were all the stirring years of the Revolution in France, and young Laennec found an opportunity to occupy himself in the military hospitals established at Nantes. At nineteen years of age he went to Paris to complete his medical education at the Clinical School of the Great Charity Hospital (La Charité) then under the direction of the celebrated Corvisart. During the first three years of his attendance as pupil at La Charité he drew up a minute history of nearly 400 cases of diseases. It was from these carefully taken student notes that the reports already alluded to were published, and from these too according to the authority of Laennec's cousin, Dr. Meriadec Laennec, quoted by Forbes, that the ground work of all his future researches and discoveries was constructed.

On June 11, 1804, he received his degree of Doctor of Medicine. From his student days up to the time of his early death, he was always delicate; not merely of frail constitution, but often actually incapacitated for carrying out the ambitions of his indomitable energy, and he must be grouped with the long list of men who struggled through illness and achieved success. Among

1 Address to the Students' Club of the Cornell University Medical School.

these are Lancisi and Corvisart, both sufferers from heart disease, Darwin and Huxley, John Hunter, Matthew Arnold, Mr. Sumner, the last three suffered from angina pectoris; and Max Muller and many others, who struggled silently, and of whose sufferings history knows nothing.

The early years after his graduation he spent in the dissecting room and morgue, familiarizing himself with those conditions which he studied clinically. At this time the great method for examining the chest was that of percussion divised by Auenbrugger. Auscultation was at that time not thought of. It was the desire for more complete clinical methods of investigation which led

No. 1.

RENÉ·THEOPHILE·HYACINTHE·LAENNEC
M.D.
Portrait from Sir John Forbes' Life of Laennec. 1827.
Boston Med. and Surg. Journal. No 19. Vol IX.
Landmann del. 1838.

Kindly loaned by Dr. Charles E. Quimby.

Laennec to *listen* over the chest. Let me read to you his own description of how he came to devise his methods of auscultating the chest. . . . "The diseases of the thoracic viscera are very numerous and diversified, and yet have almost all the same class of symptoms. Of these the most common and prominent are cough, dyspnea, and, in some, expectoration. These, of course, vary in different diseases; but their variations are by no means of that determinate kind which can enable us to consider them as certain indications of known variations in the diseases. The consequence is, that the most skilful physician who trusts to the pulse and general symptoms, is often deceived in regard to the most common and best known complaints of this cavity. Nay, I will go so far as to assert, and without fear of contradiction from those who have been long accustomed to morbid dissections that, before the discovery of Auenbrugger, one-half of the acute cases of peripneumony and pleurisy, and almost all the chronic pleurisies, were mistaken by practitioners; and that, in such instances as the superior tact of a physician enabled him to suspect the true nature of the disease his conviction was rarely sufficiently strong to prompt and justify the application of very powerful remedies. The percussion of the chest, according to the method of Auenbrugger, is one of the most valuable discoveries ever made in medicine. By means of it, several diseases, which had hitherto been cognizable by general and equivocal signs only, are brought within the immediate sphere of our perceptions, and their diagnosis, consequently, rendered both easy and certain.

"We must still admit, however, that the method of percussion is far from being complete or generally available. It frequently affords no indication in phthisis; and in no case does it enable us to distinguish this disease from chronic peripneumony. Even in peripneumony it fails us in a great measure when the inflammation is confined to the center of the lung, or when both lungs are equally affected, and only in a slight degree. It does not enable us to distinguish the disease just mentioned from pleurisy, hydrothorax, or any other effusion into the cavity of the chest. It completely fails us, or rather misleads us, in the disease called *pneumothorax*. It gives no indication of the diseases of the heart until this organ is greatly enlarged; and it is often before this takes place that the disease proves fatal. It affords no assistance in aneurisms of the aorta and large vessels, until the nature of the disease is appreciable by the sight, or by the touch. In many other respects, also, the indications afforded by percussion are rendered equivocal by peculiarities of formation, by the niceties required in its performance and the circumstances under which it is performed. It is more particularly in diseases of the heart that we regret the insufficiency of this method, and wish for something more precise. The general symptoms of disease in this organ greatly resemble those produced by many nervous complaints, and by the disease of other organs. The results afforded by application of the hand to the part, with the view of judging from the tactual sensation communicated, have been found of some use, in doubtful cases; but, as a general method this is by far too vague and uncertain to be of much benefit.

"In these cases some physicians have attempted to gain further information by the application of the ear to the precordial region; and, doubtless, such a proceeding will increase the certainty of the diagnosis. Even this, however, is very insufficient; and there are, besides, many reasons why it cannot be followed as a general guide in practice. Nevertheless, I had been in the

habit of using this method for a long time, in obscure cases, and where it was practicable; and it was the employment of it which led me to the discovery of one much better."—*John Forbes' translation, pp.* 209, 210. *First American Edition. James Webster,* 1823.

In 1816 Laennec was appointed chief physician to the Necker Hospital, where he had ample opportunity of testing and corroborating the accuracy of his method. So closely did he apply himself to his work that he broke down and was compelled to retire to his country house near Quimper. He had at this time only communicated his discovery to societies, and it was not until 1819 that the long delayed publication in book form of his methods was accomplished.

This title page appeared in the first edition:

Auscultation Mediate
ou
Traité du Diagnostic des Maladies
des Poumons et du Cœur,
Fonde Principalement sur ce nouveau
Moyen D'Eploration,
Par R. T. H. Laennec,
D. M. P., Médecin de l'Hôpital Necker, Médecin honoraire des Dispensaires, Membre de la Société de la Faculté Médecin de Paris et de plusieurs autres nationales et étrangères.
Μέγα δὲ ἡγεῦμαι τῆς τέχνης εἶναι τὸ δύνασθαι σκοπεῖν.
Pouroir explorer est, à mon avis, une grande partie de l'art.—Hipp. Epid. III.
Paris—J. A. Brosson et J. S. Chaude, Libraires, rue Pierre-Sarrazin, No. 9.
1819.

It is from this publication that I have just quoted, and I will go on from the same source to read you his own description of the stethoscope. . . . "In 1816, I was consulted by a young woman laboring under general symptoms of heart disease, in whose case percussion and the application of the hand were of little avail, on account of the great degree of fatness. The other method just mentioned being rendered inadmissible by the age and sex of the patient, I happened to recollect a simple and well-known fact in acoustics, and fancied, at the same time, that it might be turned to some use on the present occasion. The fact I alluded to is the augmented impression of sound when conveyed through certain solid bodies, as when we hear the scratch of a pin at one end of a piece of wood, on applying our ear to the other. Immediately, on this suggestion, I rolled a quire of paper into a sort of cylinder and applied one end of it to the region of the heart and the other to my ear, and was not a little surprised and pleased to find that I would thereby perceive the action of the heart in a manner much more clear and distinct than I had ever been able to do by the immediate application of the ear. From this moment I imagined that the circumstance might furnish means for enabling us to ascertain the character, not only of the action of the heart, but of every species of sound produced by the motion of all the thoracic viscera. With this conviction, I forthwith commenced at the Hospital Necker a series of observations, which has been continued to the present time. The result has been, that I have been enabled to discover a set of new signs of diseases of the chest, for the most part certain, simple and prominent, and calculated, perhaps, to render the diagnosis of the diseases of the lungs, heart and pleura, as decided and circumstantial, as the indications furnished to the surgeon by the introduction of the finger or sound, in the complaint wherein these are used.

"In prosecuting my inquiries I made trial of instruments of various composition and construction. The general result has been that bodies of

No. 2.

Laennec making a ward visit in the Necker Hospital, Paris, 1816. The Stethoscope may be seen in his left hand. (From a painting in La Sorbonne, and reproduced in *Harper's Monthly Magazine,* 1899.)

a moderate density, such as paper, wood or Indian cane, are best suited for the conveyance of the sound, and consequently for my purpose. This result is perhaps contrary to a law of physics—it has, nevertheless, appeared to me one which is invariable.

"I shall now describe the instrument which I use at present, and which has appeared to me preferable to all others. It consists simply of a cylinder of wood, perforated in its center longitudinally by a bore three lines in diameter, and formed so as to come apart in the middle, for the benefit of being more easily carried. One extremity of the cylinder is hollowed out into the

form of a funnel to the depth of an inch and a half, which cavity can be obliterated at pleasure by a piece of wood so constructed as to fit it exactly, with the exception of the central bore which is continued through it, so as to render the instrument, in all cases, a pervious tube. The complete instrument—that is, with the funnel-shaped plug infixed—is used in exploring the signs obtained through the medium of the voice and the action of the heart; the other modification, or with the stopper removed, is for examining the sounds communicated by respiration.

"This instrument I commonly designate simply the cylinder, sometimes the stethoscope." Στῆθος, chest; σκοπεῖν, to examine.

On November 15, 1818, he returned from his retreat in lower Brittany to resume his duties at the Necker Hospital. In 1822 he was appointed to the Chair of Medicine in the College of France, and made Professor of Clinical Medicine at the Charity Hospital. In 1826 he brought out a second edition of his work on Auscultation. This entailed an immense amount of very hard work and he again broke down. He was compelled to give up. The dry cough from which he had long suffered became more severe and was accompanied by pains in his right side, fever, dyspnea, diarrhea and great emaciation. He repaired again to his birthplace. There was a temporary improvement in his condition followed by a return, with greater severity, of all the bad symptoms. On August 13, 1826, he died from (as you have already guessed) pulmonary tuberculosis, in the forty-fifth year of his age.

As we look over his writings we are impressed with the clear and thorough descriptions. We are impressed moreover, with the number of terms first employed by him, which we familiarly use to-day. Some of these are the following: Auscultation, râles and the varieties of these, mucous (muquex), liquid (humides), sonorous (sonoré), crepitant (crepitant), fremitus (fremissment), pectoriloquy (pectoriloque), metallic tinkle (tintement metalique), egophony (l'egophonie), bronchophony (bronchophonie), peurile breathing, stethoscope.

As an example of his clear descriptions, which have not been improved upon up to the present day, let me read you the following:

(P. 215): . . . "On making use of the cylinder with the view of further investigating, I soon found, as indeed might have been expected, that it conveyed the peculiar vibration much less distinctly than the bare hand. I also ascertained that the degree of intensity of the vibration varied in different points of the thorax. The places where it is most distinct are the axilla, the back—between the spine and the edge of the scapula, and on the anterior and superior part of the chest near the angle formed by the union of the clavicle with the sternum. When we apply the cylinder to these points, the voice appears stronger and nearer to us; in the others on the contrary, par-

No. 3.

Description of Plate I

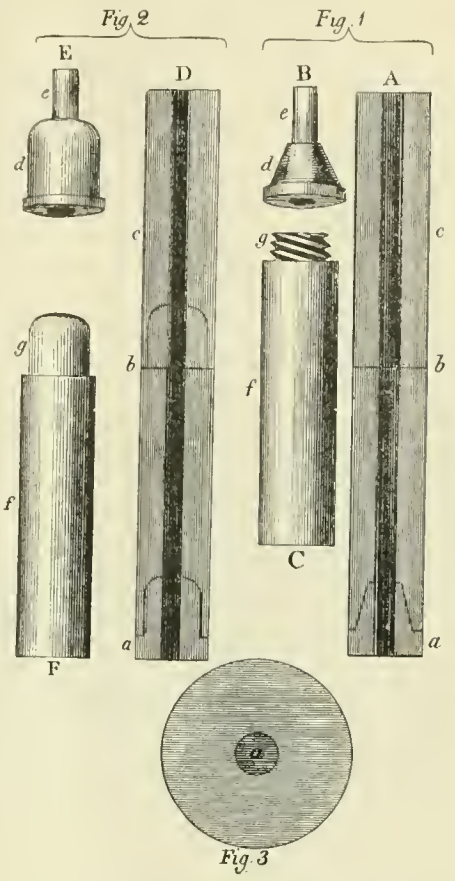


Fig. 1 (A. B. C.).—The stethoscope as delineated in the first edition of Laennec's treatise, published in 1819.

A.—Longitudinal section of the stethoscope reduced to one-third its actual dimensions.

a. The plug or stopper in its place. *b*. The point of union of the two parts. *c*. The upper or auricular half.

B.—The plug or stopper removed. *d*. The body of it formed of the same wood as the rest of the instrument. *e*. Small brass tube traversing the stopper for fixing it in the tube of the stethoscope.

C.—The upper portion of the stethoscope. *f*. The body of it. *g*. Screw, cut in the wood, for uniting the two parts together.

Fig. 2 (D. E. F.).—The stethoscope, as altered by Laennec, and delineated in the second edition, published, in 1826.

D.—Longitudinal section of all the parts united, one-third of the actual dimensions. *a*. Stopper in place *b*. Point of junction of the two parts. *c*. Upper or auricular half.

E.—The stopper removed. *d*. Its body, made of the same wood. *e*. Brass tube for fixing it into the base of the stethoscope.

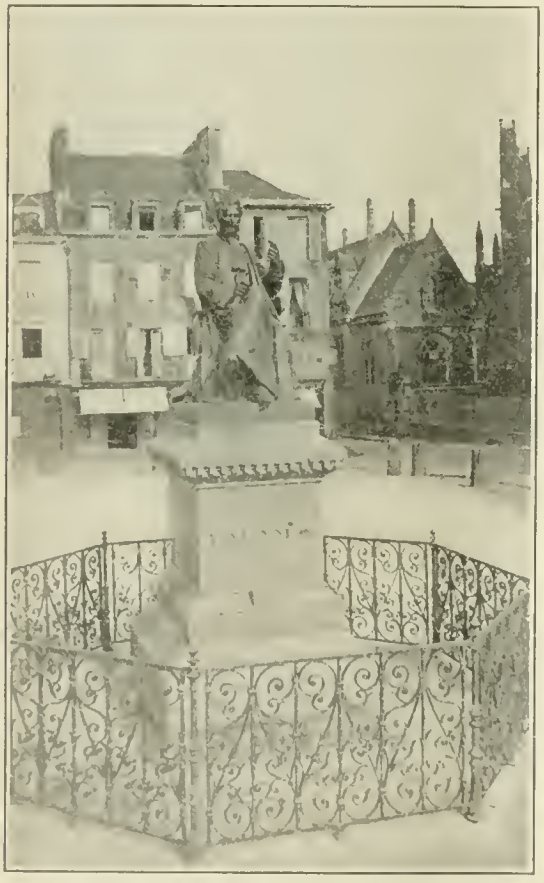
F.—Pectoral or lower half of the stethoscope. *f*. Its body. *g*. Its upper extremity reduced so as to fit the cavity in the other half; directed to be covered with thread or leather, in order to make it fit accurately.

Fig. 3.—Actual diameter of the stethoscope (both varieties). *a*. Diameter of the bore.

ticularly in the inferior and posterior parts of the thorax, it seems weaker and more remote."

(P. 214): . . . "To judge correctly of the state of respiration by this method, we must not rely on the results of the first moments of examination. The sort of buzzing sensation often caused by the first application of the instrument, the fear, restraint, and agitation of the patient, which mechanically lessen the force of the respiration, the frequently inconvenient posture of the observer, and the great sensation occasionally produced by the action of the heart,—are all causes which may at first prevent us correctly ap-

No. 4.



Statue in Quimper, Lower Brittany, France, Birthplace of Laennec.

preciating, or even from hearing at all, the sound or respiration and expiration. We must, therefore, allow some seconds to pass before we attempt to form an opinion."

(P. 216): . . . Some few individuals, again, preserve through life a state of respiration resembling that of children, and which I shall, therefore, denominate *puerile,* in whatever age it may be perceptible."

Another important characteristic of Laennec, which cannot be stated too emphatically, was that in arriving at his diagnosis he was not satisfied with the *name* of some disease which might best fit the condition before him, but he untiringly investigated his patient to obtain evidence of the pathological changes going on within. This brings out another important fact that Laennec brought his pathological knowledge to bear upon his clinical observations, and indeed his writings show a close interweaving of morbid anatomy and clinical signs.

No small part of his vast information was due to his methods of taking records in his hospital observations. I have Dr. W. S. Thayer as authority for the following quotation of the methods employed by the immortal Laennec in his hospital observations.

"When a patient enters the hospital it is the duty of the pupil to collect from him those facts which he can give concerning his disease, and to follow their course. On examining the patient myself, I dictate the principal symptoms which I observe, those especially which may serve to establish the diagnosis or indications for treatment. And I confirm my conclusion, unless I may have to change it, by subsequent observations. This dictation, which is made in Latin, for the reasons easily appreciated, is taken down by the pupil in charge of the patient, and at the same time on a separate sheet which I call the 'diagnostic leaf,' to keep which, in order that it may be shown to me and read whenever required at each visit, is the especial duty of another pupil. If a new sign appear, such as might modify the first diagnosis, I have that also added. If a patient die, the account of the autopsy is collected by the pupil in charge of the case. I read this account before all those who have been present at the autopsy, and if any correction is to be made, make it on the spot."

In the town of his birth, Quimper, in Lower Brittany, is erected a statue, a photograph of which is here reproduced. The statue is a worthy tribute by the people of this little village to the memory of their distinguished medical townsman.

Conclusion.—I have, I fear, already overstepped my time, but what I hope to have done is to have called your attention to this keen, scientific and withal, kindly physician, who never employed the quack's tools. The temptation is great to believe, as Southey puts it, that "Man is a dupable animal. Quacks in medicine, quacks in religion and quacks in politics know this and act upon that knowledge. There is scarcely anyone who may not, like a trout, be taken by tickling." Laennec's life and success show that a greater fame awaits the *honest* physician.

We must think of him as a great diagnostician looking upon the body with its complex mechanism as something to be thoroughly studied and not promiscuously drugged and guessed about, as so many of his predecessors had done, and also something to be dealt with humanely and gently.

He was then an accurate diagnostician and considerate physician, believing as we must all learn sooner or later that—

Of all the ills that suffering man endures,
The largest fraction liberal Nature cures;
Of those remaining 'tis the smallest part
Yields to the efforts of judicious Art;
But simple *kindness,* kneeling by the bed
To shift the pillow for the sick man's head,
Give the fresh draught to cool the lips that burn,
Fan the hot brow, the weary frame to turn,—
Kindness, untutored by our grave M.D.s
But Nature's graduate, when she schools to please,
Wins back more sufferers with her voice and smile
Than all the trumpery in the druggist's pile.

And last, not least, in each perplexing case,
Learn the sweet magic of a *cheerful face;*
Not always smiling, but at least serene,
When grief and anguish cloud the anxious scene.
Each look, each movement, every word and tone
Should tell your patient you are all his own:
Not the mere artist, purchased to attend,
But the warm, ready, self-forgetting friend
Whose genial visit in itself combines
The best of cordials, tonics, anodynes.

The Morning Visit.—OLIVER WENDELL HOLMES.

RECENT ADVANCES IN THE KNOWLEDGE OF THE MOVEMENTS AND INNERVATION OF THE ALIMENTARY CANAL.*

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THE mechanical factors in digestion perform three chief functions, the movement of the food through the alimentary canal, the mixture of the food with the digestive juices, and the exposure of the food to the absorbing mucous membrane. The progressive peristaltic wave is the most general activity by which these functions are effected. But the progression of the food through the canal is not uniform. Where digestive juices are lacking and absorption does not occur, as in the esophagus, the food is moved rapidly. On the other hand, where digestion and absorption can take place, rapid progression is prevented by sphincters; and the recurring peristaltic waves passing over the food toward closed sphincters serve to mix the food with the digestive juices, as in the stomach, or expose the food to the absorbing mucosa, as in the ascending colon. In the long course of the small intestine, with no sphincters present to oppose peristalsis, peristaltic activity is infrequent, and the mixing and exposing functions are carried on by a special method,—the rhythmic contraction of the circular fibers. These rapidly repeated contractions knead the intestinal contents, without causing any considerable progression.

From the foregoing general considerations it is evident that different portions of the alimentary canal are characterized by particular adaptations of the general method of forwarding, mixing and exposing the food. In this paper the mechanical activities of the different portions of the canal—esophagus, stomach, small intestine, and large intestine, with the sphincters—will be separately treated. As my time is limited I am compelled to neglect details and describe only the more important new accessions to our knowledge.

THE MOVEMENTS OF THE ALIMENTARY CANAL.

The Esophagus.—As the word implies, the esophagus is merely a food carrier, serving to transmit nutriment rapidly from one digestive region to another. The name of your president (Dr. Meltzer) is associated with the first demonstration that the swallowed material may be forced through the esophagus by a pressure in the mouth so great that the esophagus acts not to carry but to direct the discharge from the pharynx.[1] From these and subsequent observations[2] the conclusion was drawn that a fluid or semisolid morsel is thrown down the entire length of the esophagus by the contraction of the mylohyoid muscles, and that the activity of the esophagus is merely supplementary, to gather the particles left along the way, or to push down an occasional dry bolus. The possible influence of the method—a tube in the esophagus—in producing the results secured by Kronecker and Meltzer led to the repetition of the observations on man and lower animals in the Harvard Physiological Laboratory.[3] The observations were made by means of the Roentgen rays, and the movement of the food was not affected by the presence of apparatus. The results entirely confirmed those of Kronecker and Meltzer so far as liquids are concerned, but they failed to show any shooting of semisolid food or even thick fluids along the canal. In all the animals investigated (fowl, cat, dog, horse and man) the progression of semisolid and firm particles toward the stomach was accomplished by contraction of the esophagus.

According to Kronecker and Meltzer[2] the human esophagus may be divided into three parts: a cervical part 6 cm. long, a middle part 10 cm. long, and the lowest part about 6 cm. in length. These three parts contract in succession, 1.2, 3, and 6 seconds, respectively, after deglutition begins, but each part, according to Meltzer, contracts as a unit, simultaneously throughout its length. The rate of contraction is different in the different parts. The human esophagus therefore would undergo three successive sectional contractions, not peristaltic in nature.†

Schreiber[4] has studied the contractions of the human esophagus with the method used by Kronecker and Meltzer, and finds no separation of the canal into three parts, each with its own time for contraction. Instead, his curves reveal the existence of a constriction registered gradually later as the recording apparatus is placed gradually deeper in the esophagus. This moving constriction can be explained only as a peristaltic wave. The wave at a given point lasts in the neck region about 3.5 seconds, and from 5 to 9 seconds in the thoracic region. Schreiber's conclusion

* Presented at the Meeting of the American Gastro-enterological Association, New York, April 24, 1905.

† Dr. Meltzer states (New York Medical Journal, 1894, LIX, p. 391), before generalizing, that these results are true, at least, of his esophagus.

that the wave moves rapidly in the cervical portion and slower in the thoracic portion, with no pause between the two, confirms the observations of Moser and myself on lower animals. We noted[3] in the dog and cat that food was pushed onward rapidly in the upper part of the esophagus, and considerably less rapidly from the top of thorax or the level of the heart to the stomach. If the esophagus contracts in sections, with an interval of two or three seconds between the contraction of adjoining sections, a checking of the progress of the bolus should be expected at the change from the rapid to the slower rate. But no interruption of the onward movement was observed in the dog, and only occasionally was it seen in the cat—there was merely a gradual slackening of the speed as the bolus reached the lower esophagus.

The Cardia.—It is generally stated that normally the cardiac sphincter is in a state of tonic contraction. As long ago as 1860, however, Basslinger[5] described a rhythmic alternation of contraction and relaxation of the rabbit's cardia. In observations on the cat (still unpublished) I have seen rhythmic relaxations of the cardia, so that fluid food streams from the stomach into the esophagus even above the level of the heart, then is pressed into the stomach again by a peristaltic wave, only to be released a moment later to pour into the esophagus anew. I have watched this activity recurring at intervals of one or two minutes for more than a half hour. It usually begins soon after fluid food is given; within a varying period the intervals between discharges gradually lengthen until the action entirely ceases and the cardia seems tightly closed. During this ebb and flow of food in the esophagus the animal evinces no signs of distress, and if allowed her freedom, does not vomit. On re-examination the movements are again seen. The regular appearance of these phenomena in different animals makes me think that they must be normal. It may be that relaxations of the cardia of this character are associated with eructations of gas and stomach contents in cases of gastric fermentation.

Kronecker and Meltzer have maintained that even when food is squirted down the esophagus, it normally rests above the cardia until pressed through into the stomach by esophageal contraction. But if several swallowings follow one upon another, the cardiac sphincter becomes relaxed, so that the movement of the food to the stomach meets no resistance.[6]

In rabbits, after a peristaltic wave had pushed the food from the esophagus into the stomach, Meltzer observed[6] a strong contraction of the sphincter, immediately followed by a deep diving of the entire cardia into the stomach, as if pressing down the contents of a filled bag.

The functions of the cardia therefore may be to keep the passage into the stomach free from an accumulation of the swallowed food, and, so long as the sphincter remains contracted, to prevent a regurgitation of gastric contents.

The Stomach.—The stomach is a region of storage for the food, and also a region in which carbohydrate and proteid digestion may occur. These functions of the stomach are performed in different parts of the organ.

Undoubtedly the most important feature of the newer physiology of the mechanics of the stomach is the knowledge that it consists of two parts physiologically distinct. The larger left part of the stomach is the cardiac portion, the right is the pyloric portion. The pyloric portion is characterized during digestion by the continuous passage of peristaltic waves over its surface to the pylorus.[7] The cardiac portion is without peristalsis, but as the food is pressed from the pyloric portion into the intestine, the muscles of the fundus by tonic contraction squeeze the contents into the more active division, as into a hopper.[8]

The rate of gastric peristalsis varies with different animals. In the cat four to six waves pass a given point in a minute; in the dog, between four and five.[9] Moritz[7] states that in the human being the rate is about three per minute. I have confirmed his statement by means of auscultation. When food containing air is eaten, and the subject lies on his left side, a sound can be heard over the pylorus recurring rhythmically at intervals of about 19 or 20 seconds.

The efficiency of peristalsis in mixing the food with the gastric secretions depends upon the contraction of the pyloric sphincter. So long as the sphincter holds, each constriction-ring coursing from the middle to the end of the stomach presses the food into a blind pouch; the food, unable to escape through the pyloric opening, has as its only outlet the opening in the advancing ring. This is an admirable device for bringing the food under the influence of the glandular secretions of the pyloric region. For, as a constriction occurs, the secreting surface enclosed by the narrowed muscular ring is pressed close around the food within the ring. As the constriction advances it continually presses inward fresh glandular tissue, and furthermore, as the constriction advances, a thin stream of food is continuously forced back through the ring and thus past the mouths of the glands—a food stream sweeping in one direction past an ever-refreshed mucous surface moving in the opposite direction. Thus is the food repeatedly exposed to the secreting surface of the pyloric end and thoroughly mixed with the gastric juice.

The larger cardiac end of the stomach is the reservoir for the food. As peristaltic waves are absent, the food remains unmixed with the gastic juice and the inner parts may retain their original reaction for even two hours. In 1898 I pointed out that in this larger part of the stomach salivary digestion may readily take place without interference by the acid gastric secretion. In 1903 Mr. Day and I[10] proved that when carbohydrate food is mixed with saliva the cardiac portion contains at the end of an hour about 80 per cent. more sugar in unit volume than the

pyloric portion. These observations have been confirmed by Grützner,[11] who has also shown that when new food enters a partially full stomach, it passes into the midst of the cardiac mass and displaces outward the food already there. The possibility of salivary digestion in the stomach is thereby assured.

The value of the stomach as a place for holding the bulk of the food and serving it out so gradually that the intestine is not overwhelmed during its digestive and absorptive processes, was pointed out by Moritz.[12] The advantages thus secured to the intestine may be claimed also for the stomach itself, for the active portion is the pyloric portion, and the fundus serves as its resvoir—an active reservoir pressing out its contents a little at a time, as the pyloric peristaltic mechanism is ready to receive them.

The Pylorus.—Differing views have been set forth as to the manner in which the pylorus opens and permits the exit of the food. Some investigators[13] have declared that the sphincter relaxed only at the end of several hours to allow the stomach to empty. Observations under more natural conditions, with the stomach-tube[14] and with the X-rays,[8] show that the stomach is not emptied at once at the end of gastric digestion, but progressively during the period. There is thus an intermittent closure of the pylorus. The channel is usually closed, yet occasionally it opens; and when it opens, the peristaltic waves, usually engaged in churning the food, now serve to propel it into the intestine.

The factors affecting the pylorus are as yet but little understood. It is known that the discharge of food from the stomach is delayed by the presence of acid[15] or fat[16] in the duodenum. Hard particles brought to the sphincter by gastric peristalsis also prolong the periods of contraction.[8] Under these circumstances the hard particles are repeatedly swept up to the pylorus, only to be repeatedly shot back through the advancing ring of constriction. By this continual rubbing the waves of peristalsis serve to break up the more solid pieces of food, a function performed by the teeth with manifestly greater efficiency. It is possible that the prevalence of pathological conditions in the pyloric end of the stomach, rather than in the cardiac end, is due to injuries which the greater activity of the pyloric end may bring upon itself.

What agency causes the pyloric sphincter to relax? It seems probable that the signal for relaxation is the presence of free hydrochloric acid on the stomach side of the pylorus. Penzoldt[17] noted that foods delaying the appearance of free hydrochloric acid remained longest in the stomach. His observations, however, did not decide which of the factors, gastric peristalsis or the pylorus, caused the retardation of the food. In the Harvard Physiological Laboratory last year it was proved[18] that when carbohydrates, proteids and fats of the same consistency are separtely fed in equal amounts, they do not leave the stomach at the same rate. Fats remain long in the stomach; the discharge begins slowly and continues about as rapidly as the fats are absorbed or passed into the large intestine. Carbohydrates begin to leave the stomach soon after their ingestion (within ten minutes); they pass out rapidly and at the end of two hours reach a maximum amount in the small intestine,—almost twice the maximum for proteids and two and one-half times the maximum for fats,—both of which maxima are reached only at the end of four hours. Proteids frequently do not leave the stomach at all during the first half hour and occasionally not for an hour. After two hours they accumulate in the small intestine to a degree only slightly greater than that reached by carbohydrates an hour and a half earlier. The departure of proteids from the stomach is much later than that of carbohydrates and slower than either carbohydrates or fats. There is evidently a remarkable mechanism at the pylorus which permits carbohydrates, not digested by the gastric juice, to pass quickly into the intestine where they are digested, and retains the proteids, digested in the stomach, there to undergo digestion.

If the presence of free acid on the stomach side of the pylorus stimulates the relaxation of the sphincter, this mechanism is largely explained. The theory of the action of the pylorus which I suggest is as follows:[19] Free acid in the stomach opens the pylorus and initiates the chemical control of the sphincter. The opening of the pylorus permits the exit of a portion of the acid chyme. We have seen that acid in the duodenum keeps the pylorus closed; but acid in the duodenum also stimulates the flow of the alkaline pancreatic secretion.[20] No inorganic acid is normally present beyond the first few inches of the small intestine.[21] The acid therefore is here neutralized. As the neutralizing proceeds, the stimulus closing the pylorus is weakened, until the acid in the stomach again opens the sphincter. Again the acid food passes out and the acid closes the sphincter to further passage until the duodenal changes finish their slower course.

Thus, automatically, carbohydrates would go early and quickly into the intestine to meet their proper ferment; thus, automatically, proteids, postponing the presence of free hydrochloric acid by uniting with it, would be retained in the stomach to suffer alternation by the gastric juice and only after such alteration be permited to go on. Thus, automatically, the intestine would be saved from overwhelming discharges from the gastric reservoir; and by this same automatic mechanism the gastric secretion, harmful to the action of intestinal ferments, is rendered innocuous because of its admission, little by little, into the duodenum.

The Small Intestine.—The small intestine is not only a region of digestion but also a region of absorption. Throughout its length there are no sphincters. Peristalsis cannot act therefore to mix the food with the secretions or expose the digested food to the absorbing wall. The admir-

able process by which these functions are performed, I have called "rhythmic segmentation."[22] In the small intestine there are then two mechanical activities, rhythmic segmentation of the food, the most common activity, and peristalsis. The rhythmic movements of the small intestine have been variously described as shortenings and narrowings of the gut, rhythmically repeated at nearly the same intestinal circumference; as alternating to-and-fro movements of the long axis without changes in the lumen; as local or extensive periodic contractions and relaxations mainly of the circular musculature; and as waves involving both muscular coats of the intestine and traveling from above downward at a rapid rate.[22] Ludwig gave these rhythmic movements the rather undescriptive name "Pendelbewegung," or pendulum movement. Some of the rhythmic movements above mentioned are undoubtedly abnormal and due to the method of observation employed. The effect of the movements in normal cases is to mix the food and expose it to the mucosa without advancing it appreciatively along the canal.

In this process of rhythmic segmentation a mass of food which has been lying at rest is separated into a number of equal segments by constrictions of the circular muscles occurring at intervals along its length.[22] Scarcely have the constrictions formed when similar constrictions begin to appear about the middle of each segment. As these new constrictions deepen, the first constrictions begin to relax. Finally, when the new constrictions have completely divided the segments, the first constrictions have entirely relaxed and the neighboring halves of the divided segments unite to form new segments in the region of the first constriction. These new segments are again divided by circular constrictions about their middle, and neighboring halves of these divided segments unite to make a third series, and so on. This process of rhythmic segmentation of the food may go on for several minutes in the duodenum so that the food, coming from the stomach, becomes thoroughly mixed with the outpouring secretions of the liver and pancreas. It is usual for the process in the duodenum to be brought to an abrupt end by active peristalsis. In other parts of the small intestine rhythmic segmentation of the food may continue for half or three quarters of an hour without moving perceptibly along the canal. In the cat the segmentation may occur about thirty times in a minute. The food may thus be divided and redivided over and over again a thousand times or more with no advance. This operation has been observed in the dog at the rate of from eighteen to twenty-two segmentations per minute. I have never watched the movements of the small intestine in man, but I have been able with the stethoscope to hear in the lower abdomen rhythmic sounds repeated with remarkable regularity at intervals of seven or eight seconds. It seems to me probable that these sounds are associated with movements of rhythmic segmentation, for I have heard similar sounds attending segmentation in the cat. If this is true the rate of segmentation in the human being would be seven or eight times per minute. The process of rhythmic segmentation thoroughly mixes the food with the digestive secretions of the liver and pancreas and of the intestine itself, and thoroughly exposes the digested food to the absorbing walls, for, with each constriction, the absorbing mucous membrane is plunged directly into the midst of the little masses of food. This remarkable activity must also affect the flow of blood and lymph, since Mall[23] has shown that contraction of the intestinal wall forces venous blood from the submucous plexus into the radicles of the superior mesenteric vein and has noted that it must similarly affect the flow of the lymph.

The progression of the food through the small intestine is possibly caused to a very slight extent by the segmenting process, but it is typically performed from time to time during digestion by the well-known peristaltic wave, which has so long been regarded as the chief activity of the intestinal muscles.

The Ileocolic Sphincter.—In 1902 Katz and Winkler,[24] and in 1904 Elliott[25] demonstrated that at the junction of the small and large intestines there is, at least in the dog, cat and rabbit, a distinct sphincter under nervous control, and not a mechanical valve. This sphincter is normally in a state of tonic contraction and serves to keep separated the contents of the small from those of the large intestine. There is some anatomical and histological evidence that also in man the term "ileocecal valve" should be replaced by "ileocolic sphincter," but physiological evidence of the presence of this sphincter in human beings has not yet been produced.

The Large Intestine.—When the large intestine is full the material in the distal portion is usually composed of rather hard lumps, while that in the proximal portion is soft and of uniform consistency. The condition of the contents in these two regions indicates a division of the large intestine into two parts, and the mechanical activities of these two parts correspond to the differentiation. In the distal portion the material is slowly advanced by rings of tonic constriction. In the proximal portion the common movements are waves of constriction running *backward* toward the cecum.

The antiperistalsis of the proximal portion of the large intestine was incidentally observed in the cat by Jacobj[26] during a research on colchicum poisoning. In 1902 this activity of the large intestine was established as the normal activity in the undisturbed animal by observations with the Roentgen rays in the Harvard Physiological Laboratory.[22] In 1904 Elliott and Barclay-Smith[27] confirmed these observations on the cat and found that in the rat, guinea-pig, rabbit, and occasionally in the hedgehog and ferret, antiperistalsis may be observed in the proximal colon. They also point out that the contents of the hu-

man cecum and ascending colon are of uniform soft consistency, whereas those of the transverse and descending colon are generally firm. As these distinctions correspond to those observed in animals in which antiperistalsis in the proximal large intestine has been seen, it seems highly probable that the human cecum and ascending colon are likewise characterized by this activity.

The antiperistalsis in the large intestine makes reasonable the presence of a sphincter or valvular structure at the point where the small intestine enters the large, for in so far as the sphincter is competent to restrain the food in the large intestine from returning into the small, the antiperistaltic waves have the same effect as the peristaltic waves in the stomach, pushing the food against the closed pylorus. When a constriction occurs some of the mucous surface of the colon becomes enclosed by the narrowed muscular ring, and, as this constriction passes on, fresh areas of this surface are pressed in around the narrow orifice, while a thin stream of food is passing by it in the opposite direction. The waves recur about five times a minute in the cat, and the period of activity, which lasts about five minutes, is usually repeated every fifteen or twenty minutes. During each normal period of antiperistalsis twenty-five waves or more must pass over the food in the cecum and proximal colon in this churning manner. The result must be again a thorough mixing of the contents with the digestive secretions brought from the small intestine, and an exposure of the digested food to the absorbing wall.

In 1894 Grützner declared that he had found material, injected into the rectum, carried back into the small intestine even as far as the stomach. Since then some observers have confirmed, others have doubted Grützner's results. The presence of antiperistalsis in the colon led me to believe there existed an activity which would fully account for Grützner's findings. Accordingly I injected into the large intestine enemata of different amounts and of different consistency. In every instance antiperistaltic waves were started by the injected mass and the material was thereby carried in considerable amount to the cecum. Never in my experience have small or mushy enemata been carried back through the ileocolic sphincter. But when large injections were given, even of the consistency of thick cream, *i.e.*, amounts nearly filling the colon and cecum, the antiperistaltic waves may carry the food from the large intestine into the ileum. Radiographs taken at different intervals after the injection show that the antiperistaltic waves as time passes may almost completely empty the proximal colon, and that the small intestine gradually receives more and more food. After a short time typical segmenting movements can be seen in the loops.[22] Evidently, so far as mechanical activities are concerned, the small intestine is bipolar: food entering at either end is worked over with the same mixing and absorbing activites.

With each new accession of food in the large intestine a strong tonic constriction of the cecum and proximal colon occurs, which presses onward into the distal colon some of the contents of these parts. Antiperistaltic waves follow at once the tonic contraction, so that much of the food which has been pressed onward is returned toward the cecum. With the repetition of this process, however, more and more material accumulates in the distal colon until finally a persistent ring of contraction separates this material from the region of antiperistalsis; as still more food appears in the large intestine this ring moves slowly onward toward the rectum, pressing the mass before it, and is followed by other similar rings carrying onward similar masses by very slow peristalsis. The masses of waste material thus advanced accumulate in the lower part of the distal colon and are ultimately passed from the body in the act of defecation.

In the cat defecation is preceded by the disappearance of the slowly moving peristaltic rings in the lower part of the distal colon and the appearance of a strong, broad constriction near the beginning of this region. The band of constriction is then drawn downward by a shortening of the longitudinal muscles. Thereupon the constriction, which divides the lumen, moves slowly along and, with the aid of the voluntary abdominal muscles, pushes the separated mass through the relaxed sphincters out of the canal.[22] Elliott and Barclay-Smith[27] observed in all the animals they studied a similar powerful constriction of the tube occurring at a definite point some distance up the colon and spreading thence downward so as to empty the distal segment, and in many animals there was also a contraction of the longitudinal muscle which, fixed in the perineal region, draws the colon down into the pelvis and thereby aids the constriction that performs evacuation.

THE INNERVATION OF THE ALIMENTARY CANAL.

In the foregoing review of the motor activities of the alimentary canal the main factors are shown to be the moving peristaltic wave and the stationary rhythmic contraction of circular muscle. To what extent are these movements independent of the central nervous system, and in what manner are they affected by their connection with that system? Before attempting to answer this question, it will be necessary to know the nervous relations of the alimentary canal.

Throughout the canal there lies, between the inner circular and the outer longitudinal fibers, a nerve net or plexus,[28] of primitive structure, characteristic of the walls of viscera and of simple animals such as the cœlenterates. This nerve net (Auerbach's plexus) provides a local nervous mechanism.

Besides a plexus system the alimentary tract possesses intimate connections with the spinal cord and brain. The vagus nerve is distributed to esophagus, stomach, and small intestine; and pelvic visceral nerves, to the large intestine. Moreover the sympathetic nervous system sends fibers

to the entire canal from the cardia to the end of the colon.

The Local Nervous Mechanism.—The simplest form of activity in the alimentary canal is the local contraction of the circular fibers, the process of rhythmic segmentation. Bayliss and Starling found that in the dog with abdomen opened this movement consisted of constrictions repeatedly recurring at the same spot and traveling along the gut from above downward. When nicotine was injected into the blood vessels or cocaine was painted on the intestine, they found that the true peristaltic wave was abolished, but that rhythmic contractions continued.[29] The rhythmic contractions now traveled in either direction, instead of downward only. As cocaine and nicotine, in the amounts used, paralyze nerve cells, the rhythmic contractions were regarded as of muscular origin, and the transmission of the contraction a muscular transmission. Last year Magnus[30] succeeded in recording graphically rhythmic contractions of circular and longitudinal muscles of the intestine removed from the body and kept alive in warm salt solution. The contractions persisted after the removal of the mucosa and Meissner's plexus; but after separation of the circular and longitudinal muscular coats, the circular coat would respond to stimulation, but only the longitudinal coat registered the spontaneous rhythm. Examination proved that Auerbach's plexus was adherent to the longitudinal coat. Magnus concluded therefore that the rhythmic movements are of nervous origin. The question as to the neurogenic or myogenic origin of the rhythmic movements of the small intestine is therefore an open one.

The peristaltic activity of the alimentary tract shows different degrees of dependence on nervous influence. Elliott and Barclay-Smith[27] state that antiperistaltic waves of the large intestine are not abolished by nicotine. They class these waves with the rhythmic movements of the small intestine, as of myogenic origin.

The true perstalsis of the small intestine, according to Bayliss and Starling,[29] and likewise of the large intestine, according to Elliott and Barclay-Smith,[27] is a coordinated movement, dependent on a reflex in the wall of the canal. The movement continues after separation from the central nervous system, but is under local nervous control since it is destroyed by cocaine or nicotine. And, as Magnus has proved,[30] the seat of the reflex is in Auerbach's plexus. It is probable that the same reflex governs the stomach movements, for gastric peristalsis continues after the stomach is removed from the body.[31]

The local reflex causes the canal to respond in a uniform manner to stimulation. The uniformity of the response has led Bayliss and Starling to formulate a *law of peristalsis.*—"Local stimulation of the gut produces excitation above and inhibition below the excited spot." So long as the reflex mechanism is intact in the stomach, the small intestine, and the distal colon, antiperistalsis cannot occur—a conclusion which Mall's[32] observations on reversed loops of intestine fully support.

The peristalsis of the esophagus is singularly closely related to the central nervous system. For example, Mosso[33] proved that cutting across, or even extirpating a piece of esophagus did not stop the peristaltic wave, if connections with the central nervous system remained intact.—the wave, started above the cut, reappears below. Yet, as Meltzer[34] has shown, there is also in the esophagus a local reflex like that in the remainder of the alimentary canal; and if anesthesia is so deep that central nervous influences are eliminated, at least in part, from control of the peristaltic wave, the wave will move, but may be stopped by cutting or ligating the esophagus. On the other hand, it has been known since Reid's observations in 1839[35] that severance of the vagus nerves in the neck deeply disturbs the activity of this region, so that food accumulates in the esophagus and may remain there for hours without being advanced. I have determined that the delay is not due to spasm of the cardia, but to a paralysis of the esophagus.[36] It seems probable that the peristaltic contractions of the esophagus, to be efficient, must be supported by nervous influences from the outside. In this respect the esophagus is different from the remainder of the alimentary canal.

The Nervous Control of the Sphincters.—Whether the sphincters are controlled by the local nervous reflex active elsewhere in the alimentary tract is not yet experimentally settled. So far as the pylorus is concerned, cutting either the vagus nerves or the splanchnics does not destroy the mechanism maintaining the difference between the discharge of proteids and carbohydrates from the stomach.[36] Whatever the local control may be, the sphincters are certainly markedly affected by their connection with the central nervous system. It must be confessed, however, that our knowledge of the extrinsic innervation of the alimentary canal is still in an unsatisfactory state. The many contradictory observations cannot be set down here; I shall endeavor to present only the later and best-founded conclusions.

The observations of Kronecker and Meltzer,[2] and Openchowski[37] have proved that the vagus nerve carries to the cardia inhibitory impulses. Recently May[38] has declared that although the first effect of vagus stimulation is inhibitory, there is later a slow augmentation of the contraction. Langley[39] was able to separate inhibitory and augmentor impulses in the vagus with drugs; after curare, vagus stimulation caused contraction of the cardia, and after atropine, the same stimulation caused inhibition. Stimulation of sympathetic fibers, according to Openchowski,[37] brings about increased contraction of the sphincter.

At the pylorus the usual result of vagus stimulation is contraction,[37] although relaxation is occasionally observed. May[38] states that stimulating the vagus has the same effect on the pylorus

that it has on the cardia,—first an inhibition, followed shortly by an augmentation of contraction. Impulses from the splanchnics, so Openchowski states,[37] are chiefly inhibitory of pyloric contraction in the dog, but in the rabbit they are motor.

The ileocolic sphincter is not affected by the vagus, but stimulation of sympathetic nerves causes the sphincter to contract, and at the same time inhibits the circular muscle of adjoining parts of the ileum and colon.[25]

The Extrinsic Innervation of the Stomach and Intestines.—The vagus nerves contain motor as well as inhibitory fibers for the stomach. According to May[38] the stimulation of the vagus results in the same changes that have been described for the cardiac and pyloric sphincters; there is first an inhibition of the peristalsis of the pyloric end of the stomach and a lessening of muscular tone in the cardiac end, and this is followed by a much more vigorous peristalsis and, in the cardiac end, by an increased tone.

Most observers attribute to the sympathetic fibers of the stomach inhibitory functions alone; but Morat[40] has noted the opposite effect, and Openchowski[37] states that in the rabbit the sympathetic has chiefly a motor influence. May[38] fails to find any effect whatever following stimulation of the splanchnic nerves.

There is a greater unanimity of opinion regarding the motor innervation of the small intestine,—almost all observers ascribe to the vagi an excitatory influence. Bayliss and Starling[29] found that invariably stimulation of these nerves produced, after only a momentary inhibition, a marked and prolonged augmentation of the contractions of the circular muscles. On the other hand, although the very careful work of Bayliss and Starling[41] has disclosed only inhibitory action of the splanchnic fibers, many other observers have recorded a motor effect as well.[42]

The results secured by Bayliss and Starling, in their study of the innervation of the large intestine,[43] are quite in harmony with what they found true of the small intestine,—the pelvic visceral nerves arising like the vagus from the central nervous system, are augmentor nerves, whereas the supply from the sympathetic system is purely inhibitory in its action. Elliott and Barclay-Smith[27] have confirmed the observations of Bayliss and Starling, but find that the pelvic visceral nerves are distributed only to the distal part of the colon. The region of antiperistalsis does not, therefore, receive motor impulses from the pelvic nerves.

Inhibition of the Movements of the Alimentary Canal During Emotions.—Observations on the cat, made in the Harvard Physiological Laboratory in 1898, showed that gastric peristalsis is stopped whenever the animal manifests signs of rage, distress, or even anxiety.[8] With the similarity between the extrinsic innervation of the stomach and that of the intestinal tract, it was of interest to note that emotional states have the same effect on movements of the intestines that they have on movements of the stomach. Any signs of emotional disturbance, even restlessness and continued mewing, which indicate, perhaps, uneasiness and discomfort, were accompanied by total cessation of segmenting movements in the small intestine and antiperistalsis in the proximal colon, as well as complete quiescence of the gastric mechanism. Such signs of anxiety I have seen accompanied by entire inactivity of every part of the alimentary canal during more than an hour of continuous watching.[22] My observations on cats have been fully verified by Lommel,[44] who worked with dogs. Evidently chemical factors of digestion can have little importance, if fears and worry prevent the delivery of the food to regions of active digestion and absorption.

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39 Langley: Journal of Physiology, 1898, xxiii, p. 407.
40 Morat: Archives de Physiologie, 1893, xxv, p. 142.
41 Bayliss and Starling: Journal of Physiology, 1901, xxvi, p. 125.
42 See Bunch: Journal of Physiology, 1899, xxiv, p. 97; and Bechterew and Mislawski: Archiv für Physiologie, 1899, Supplement-Band, p. 243.
43 Bayliss and Starling: Journal of Physiology, 1900, xxvi, p. 107.
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A CASE OF PNEUMOCOCCUS INFECTION OF THE HIP.

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The patient, a boy of four years, was brought to the Roosevelt Hospital Dispensary on September 21, 1904, by his parents, who gave the following history: They had had ten children, two of whom were dead; one of pneumonia, after an illness of three weeks, the other of measles.

No history of tuberculosis could be obtained. The child had had measles when two years old, and from the statement of the parents and of the family physician, it appeared that he had been seized two weeks ago with an attack of pneumonia characterized by cough, high temperature and prostration.

For the past five days the child's left hip has been "swollen." He has complained of pain in the joint and has been restless at night. The parents are sure that the hip gave no symptoms when the child recovered from his pneumonia.

Examination.—The child is evidently sick. Swelling and infiltration are present about the left hip. The veins over the swelling are prominent. Left thigh is held in abduction, outward rotation and slight flexion. Motions of the hip-joint are limited in all directions, but not much true muscular spasm can be brought out. There is deep fluctuation over the head of the femur. Temperature 103° F., pulse 164, respiration 38.

The patient was sent immediately into the hospital, where he was put to bed, with Buck's extension on his limb.

For my notes on the further progress of the case I am indebted to the courtesy of Dr. Hotchkiss, attending surgeon at the Roosevelt.

Physical Examination.—"Râles all over both lungs. Left lung: Many loose, larger and smaller râles, some sibilant râles all over front and back. Over small area in axilla slightly higher pitched inspiration. No dulness. Broncophony below left scapula. Leucocytosis of 24,400."

The following morning the temperature was 99.8° F., pulse, 144; respiration, 34. In the afternoon the temperature had risen to 103.6° F. The next day the joint was aspirated, and was found to contain a thick purulent fluid. Under ether an incision was made down to the joint over the head of the femur, and the pus was evacuated. The capsule was found torn and the head of the bone eroded. A counter opening was made on the inner side of the thigh, and drainage tubes were inserted. According to Dr. N. E. Ditman, assistant pathologist of the hospital, a specimen of the pus "contained organisms identified as pneumococcus." The identification was morphological only.

The patient suffered from shock, but rallied. From now on his temperature ranged between 99.3° and 104.8° F.

"October 10, under ether, an incision about two inches long was made down to the periosteum, over ninth rib. The periosteum was divided and pushed away, and about one inch of the rib was resected. Pleural cavity opened. A quantity of yellow pus exuded, composed chiefly of fibrin. No bacteria found. Tube inserted. Dry dressing."

After this operation, the child seemed to improve for a time, but on October 29 his temperature reached 104.4° F. On that date a counter opening was made behind the hip, and a rubber tube was inserted, connecting with the others previously put in.

On October 31 the patient suffered from a considerable hemorrhage from the anterior sinus of the wound. The bleeding recurred on the next day, and on November 2 the child died. No autopsy was done.

The case derives added interest from the rarity of attack of the hip-joint by the pneumococcus. As far as I have ascertained, this is but the second hip reported.

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PNEUMONIA.—ETIOLOGY AND EPIDEMIOLOGY.

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The etiology of pneumonia has been so thoroughly worked out, and so often and clearly presented, that it is now well understood by every one who keeps fairly well abreast of current literature bearing upon this subject. Although this is true of the broad and fundamental facts, we yet lack that exact information upon many of the details which are essential to a complete understanding of all the relations existing between the causative germ, its environment and the developed disease. Enlargement of our field of knowledge in these directions will almost certainly lead to the formation of rational, simple and readily available measures of prophylaxis which will radically change the current history of pneumonia—the greatest scourge of our land.

The idea that pneumonia is a specific infectious disease has for centuries found lodgment in medical literature, as I have already shown.[1] From the contemplation of theory to a search for facts is natural progression. It is not surprising

1 Wells. Jour. Am. Med. Ass'n, 1889, XII, 258; 332.

therefore, that, thirty years ago, Klebs should have been diligently searching the bacterial field for a cause for this disease, and that he should have selected his "monas pulmonale" as the probable causative germ. It is difficult for us today, from the published description, to identify this "monas pulmonale" with any of the microorganisms which abound in the secretions of the pulmonary air passages. Dr. Klebs, however, informed me a few years since that it was identical with the pneumococcus.

The pneumococcus, now the recognized cause of pneumonia, was discovered, independently, by Sternberg and Pasteur, in 1880; later Fränkel, Weichselbaum and others, demonstrated the presence of this bacteria in, practically, all cases of pneumonia. Its morphology and cultured characteristics have been very fully described within recent years, especially by Washbourne, Eyre and others. In this connection I shall only pause to call attention to the observation, of far reaching importance, that the various strains of pneumococci vary widely in physical characteristics and, especially, in virulence; and that in each of these such variations may be accentuated by environment and cultivation. The plain inference to be drawn from this fact is that herein lies the true explanation for the increasing prevalence, and mortality of pneumonia, which I have shown, exists.

The pneumococcus is present in the fauces and neighboring cavities in a very large proportion of healthy persons. In a series of 135 persons I found it upon the tonsils of 45 per cent., and, as the result of further observation, I am quite sure that this is considerably below the true proportion. The pneumococcus in this location appears to be innocuous, producing pneumonia only when it reaches and develops in the pulmonary alveoli. Any condition which renders the laryngeal and bronchial reflexes paretic, as, *e.g.*, prolonged exposure to cold, privation, exhaustion, or even profound sleep, may permit the gravitation of pneumococcus-laden secretions from the upper respiratory passages to the alveoli, and this is probably the usual route followed by the infectious germ. The fact that the pneumococcus is found in the blood in practically all cases of pneumonia makes it incumbent upon us to consider the possibility of the bacterium entering the general circulation first, with subsequent localization in the lungs, but I am of the opinion that the respiratory path is the one usually, or invariably, taken.

In making systematic observations upon smears from tonsillar surfaces I had not progressed far before this curious and, I believe, most important fact was noticed, namely, that in some families the pneumococcus was present in every member, or at least in a majority of members, while in other families it was found in none: also that in families of the first class there was often a history of more or less recent cases of pneumonia, while such history was usually absent in families of the other class. Some notable exceptions were found to this rule: For example, in one large family there was a case of pneumonia, none but the patient being affected with pneumococcus. In two instances every member of moderate-sized families had the germ in their throats, but none had ever had the disease mentioned. The distinguished discoverer of the pneumococcus informed me, recently, that although he has been the host of this organism for at least a quarter of a century he has never been the subject of pneumonia. No person who has previously had pneumonia examined by me has been found free from the pneumococcus, no matter how long the intervening period. We may well believe that these are the most vigorous trains of the pneumococcus, and that such are most likely to survive, become the most widely disseminated and produce the severest and most dangerous effects.

The pneumococcus is probably disseminated, in the main, by coughing and sneezing, the pneumococcus-laden secretions being thrown into the air as a spray, and thus inhaled by others. This assumption, considered as being true, explains many of the well-known etiological facts of pneumonia: Thus it would reasonably explain the notorious increase in the prevalence of the disease; its increasing severity and danger; the acknowledged dangers attending the congregation of people in public places, especially at times when many persons are coughing and sneezing; the occurrence of recurrent and family cases, house and local epidemics, etc.

In a paper published about fifteen years ago I recorded a number of instances in which pneumonia occurred as a house epidemic, and several have since been observed, the latest as follows:

In a family of four persons the two children had severe pneumonias, with recovery, in March, 1904; the mother is now recovering from a severe attack; the father had the malady several years ago. In September the children and the mother had the pneumococcus in their throats; no opportunity was had to examine the father.

Many remarkable examples are found in the literature:

In Metropolis, Ill., Dr. Magrum died of pneumonia December 26, 1898; the only daughter on the following day; his widow on December 30; the only son the following week; the grandmother January 10, 1899—the entire family within two weeks.

In one household, near Port Jervis, N. Y., in 1900, six persons were ill at one time, with pneumonia—three died; three recovered.

Campbell reports a mother and two young children ill at the same time; both the children with empyema as a complication. Charles and Dewar report four cases in one house, two youths and two children; in both the latter pleurisy with effusion was present.

Withington reports a family of four old women, in which pneumonia attacked every member within a month. Bogue reports five cases in a family of nine persons; Copeman five in a family of seven; Graf seven cases in one house; Weber eight families with six cases, and two families

with five cases; Edsall and Chriskey six cases, consecutively developed in the same hospital bed.

In these cases we must reckon with the wide and ill understood question of susceptibility. It is well known, but seldom mentioned, that there is, at times, and from unknown causes, a peculiar susceptibility to various infectious diseases. For example, sporadic cases of diphtheria, scarlet fever, measles, smallpox, etc., may be introduced into a community without the disease obtaining an epidemic foothold, while at other times the slightest and most remote contact propagates the malady with surprising rapidity. It must have been noticed by every observing physician that revaccination is much more successful during the epidemic presence of smallpox and in some epidemics than in others. This same unusual susceptibility, I am quite sure, exists in some outbreaks of pneumonia; and independently of the general characteristics of the pneumococcus.

To be sure there may be atmospheric influences acting upon the germs as they lie in the throat, which tend to increase their activity; possibly to such an extent that the system becomes affected by the pneumotoxins, with reflex pareses as a consequence, and thus opening the gateway to the pulmonary alveoli. Such influences may be temporary, as when local epidemics of short duration occur; they may be most profound, as when the disease is widespread along with influenza; it may be securely fixed in a locality, as may be noticed in comparing the fearful prevalence and frightful mortality in the City of Mexico as compared with that existing in, *e.g.*, Cairo or Melbourne. I am quite sure that studies along these lines will lead to interesting and important results.

From the consideration of recurrent, consecutive family cases and house epidemics to that of the epidemic prevalence of pneumonia is but a short step. This disease, as is well known, sometimes prevails as an epidemic, and when widespread or very fatal necessarily attracts the attention of the medical observer. Accounts of the most remarkable of these outbreaks usually come to us from the most remote times and the greatest distances, and there must always remain doubts as to whether some of the great epidemics of which we read, were truly pneumonic in character.

Thus, *e.g.*, the plague of Athens, which, after devastating Ethiopia and the Mediterranean shores, destroyed more than a quarter of the inhabitants of the Grecian capital, has been considered a form of pneumonia, although the wonderfully graphic account of the disease left by Thucydides—himself a sufferer from the malady and one of the few who recovered—scarcely warrants the conclusion. The black death of the middle of the fourteenth century, which swept away one-third of the inhabitants of every land which it visited, has been considered—erroneously, I believe—a form of pneumonia. The marked features of this malady were ardent fever, cough, sanguineous expectoration, fetid breath, epistaxis, diarrhea and petechia. The disease was considered so contagious that to be near those affected was to invite certain death, "so that parents abandoned their infected children and all the ties of kindred were dissolved."

In 1889 I published a table which included all the recorded epidemics of pneumonia to which access was attainable. Since that time I have made numerous corrections and additions, bringing it down to the present. These are sufficiently important to warrant inclusion in this paper.

EPIDEMIC OF PNEUMONIA.[1]

1873	Magdeburg.	Schaefer, Inaug. Diss., Halle, 1885. 7.
	Kiel.	Schroeder, Inaug. Diss., Kiel, 1883, 35.
	Dublin.	Newsholme, Allchin's Pract., 1900, i, 180.
1874-5	Frankford Prison.	Rodman, Am. Jour. Med. Soc., 1876, cxli, 76.
	Alzenau, and other towns in Bavaria.	Graf, Inaug. Diss., Würzb., 1876.
	Windham, Me.	Dunn, Rpt. Me. Bd. Health, 1885, 259.
	N. Mecklenburg, N. C.	Alexander, Charlotte Med. Jour., 1896, 457.
1877-8	Florence.	Banti, Gaz. Med. Ital. Prov. Venet., 1883.
1878	Park Co., Indiana.	Goldsberry, Ft. Wayne Med. Mag., 1895, iii, 353.
1879	Boston.	Bost. Med. & Surg. Jour., Jan. 20, 1879.
	Uster, Switzerland.	Ritter, Archiv. f. k. Med., xxv, 53.
	Verona.	Messalonga, Arch. Gen. de Med., 1880, v.
	Cologne.	Knövenagel, D. mil. ärtzl. Zeit., xii, 286.
	Amberg Prison.	Kerchensteiner, Bayer. ärtzl. Intellig., 1881, xxxviii, No. 20; Emmerich, Arch. f. Heilk., 1884, ii, 117.
1882	Zang, Germany.	Schmidt, Berl. klin. Woch., 1883, No. 22.
1883	Reipisch.	Schäfer, op. cit.
	Salpêtrière, Paris.	Newsholme, op. cit.
1885	Village near Fulda	Coleman, Inaug. Diss., Würzb., 1886.
	Tübingen and Lustenau.	Rall, Inaug. Diss., Erlangen, 1887.
	St. Petersburg.	Triwus, Vratch., 1885.
	Sheffield, Conn.	Mason, Rpt. Conn. Bd. Health, 1885, 338.
1885-6	Scunthorpe, Eng.	Couldrey, Lancet, 1885.
	Umbala, India.	Duncan, Lancet, 1895, i, 193.
	Toronto.	Geike, Trans. Int. Med. Cong., 1887.
	Bolton, Ontario.	Warbrick, Personal Communication.
	Dingwall, Eng.	Bruce, Brit. Med. Jour., 1886; Adams, Ibid., 1887.
1886-7	Belfast.	Lancet, 1887, ii, 1146.
	Muskingum Valley.	Bell, Med. Index, 1887.
	Dingwall and Wylain.	Foulis, Brit. Med. Jour., 1887.
	Poland.	Jour. Amer. Med. Assoc., Dec. 1, 1888, 781.
1887-8	Terrevalle and Partima.	Naldoni, Gaz. d. Osped., 1888.
	Canton St. Syphronic.	Bard, Lyons Med., 1889, xiii, 43.
1888	Middlesborough.	Sadler, Lancet, July 14, 1888; Ballard, Ibid., 1890, i, 1087.
	Bonn; Fischbach.	Ditzel, Inaug. Diss., Würzb., 1889.
1888-9	Germany, many places.	Angyan, Wiener m. Woch., 1890, No. 7; Levy, Berl. k. Woch., Feb. 17, 1890.
1889	Prince Edward's Island.	N. Y. Med. Rec., July 13, 1889, 44.
	London.	Brenchley, Lancet, 1890, i, 1425; Wilkes, Ibid., 1889, ii, 1362.
1890	Scotter.	Parsons, Epid. Pneum. in Scotter, 1890.
	Sheffield.	Gwynne, Brit. Med. Jour., Nov. 1, 1890.
	Busenberg.	Detzel, op. cit.
1891	Heidelberg.	Gartner, Centralb. f. Gyna., 1891, No. 27.

[1] For earlier epidemics of this disease, see Journal American Medical Association of February 23, 1888.

1893	Yeardon.	Whitelegge, Allbutt's Syst. Med., i, 656.
	Pratt Mines, Ala.	Cochran, Med. Rec., Nov. 18, 1893, 664.
	Germany, various parts.	Lang, D. m. Woch., 1895, No. 10.
1893-4	Cawdor, Scotland.	Brit. Med. Jour., 1895, i, 360.
1894	Pittsburg.	Boyce, Pittsb. Med. Rev., 1894, viii, 148.
	London.	Richardson, Asclep., 1894-5, xi, 250.
	Lexfield.	Low, Pub. Health, Lond., 1894-5, vii, 34.
1894-5	Louisville.	Marvin, Am. Pract. & News, 1895, xix, 415.
	Sarnthal, Austria.	Foppa, Oestr. sanit. I.. Wes., 1896, viii, 353.
1895	Pachbadra Rajputan.	Banerjee, Ind. Med. Gaz., 1896, xxxi, 95.
	France, various places.	Poulet, Bull. Soc. Ther., 1895, ii, 1314.
	Flint, Eng.	Reece, Brit. Med. Jour., 1895, ii, 1314.
	Peshawar, India.	Stephenson, Lancet, 1896, i, 1630.
1896	Soudan.	Brit. Med. Jour., 1896, i, 1229.
1897	Edwardsville, Ill.	Personal Communications.
	Kimberly.	Kolle, D. m. Woch., 1898, xxiv, 425.
1898	Valley Falls, N.Y.	Ferguson, Jour. Am. Med. Assoc., xxx, 966.
	Metropolis, Ill.	MED. NEWS, 1899, lxxiv, 88.
	Middlesborough.	Dingle, Rpt. Health Of., Middlesb., 1899.
	Bakersfield, Cal.	Snook, Personal Communication.
	Italy.	Molteni, Gaz. d. Osped., June 5, 1898.
1899	Ardara, Ireland.	Hamilton, Brit. Med. Jour., 1899, i, 1214.
	Janesville, Pa.	Doolittle, MED. NEWS, 1899, lxxv, 173.
	Albia, Iowa.	Gray, Iowa Med. Jour., Sept., 1899.
1901-2	Leavesden Asylum	Sinigar, Lancet, 1903, i, 169.
1902-3	Quincy Soldiers' Home.	Montgomery, Ill. Med. Jour., Feb., 1904.
1903	Chicago.	Reynolds, Bull. Health Dept., May 31, 1901.
	Neubrunn.	Spaet, Münch. m. Woch., Oct. 6, 1903.
	Johannesburg.	Brit. Med. Jour., 1904, i, 277.

Thus it is seen that in every quarter of the globe having a medical history epidemics of pneumonia have been recorded. It is noticeable, however, that the elevated regions of western Europe have been visited oftenest. The epidemics have occurred most frequently in winter and spring; occasionally in autumn; infrequently in summer. They have often followed in the wake of influenza or some other epidemic disease, but such appearances have been, so far as possible, eliminated from consideration in this connection.

Upon many epidemics peculiar features have been impressed which serve to distinguish them from all others. These variations may be noticed in the classes of persons attacked; mode of invasion; course and symptomatology; complications and sequelæ; fatality and morbid anatomy.

Thus the Alaska epidemic of 1881 was confined, with a single exception, to the native population. "A singular coincidence connected with the outbreak was its appearance at these places immediately or soon after the arrival of the first vessel in port. This circumstance so impressed itself upon the native mind as to give rise to the general and strong belief in the importation of the disease." The malady was marked by great dyspnea, cyanosis, insomnia and profound physical and mental depression—indeed the latter was so profound that it was almost impossible to impart the slightest ray of hope to the patient. The course was rapid and the fatality great.

The epidemic of Obersichte was remarkable in that the malady was confined to young children. From March 20 to April 2, 15 out of 50 children under five years of age were attacked with pneumonia. For a long time previously, and subsequently, there were no other cases of the disease in the village or vicinity.

In the Rietnordhausen epidemic the school children were first attacked, and as the disease spread it affected, mainly, the families to which these children belonged. There were a total of 42 cases, with two deaths, the malady running a very mild course.

The Kimberly epidemic was confined to the Kaffirs. Many remarkable features were noted: There was, in most cases, a nasal discharge of greenish pus. In a large majority of the cases there was only slight pulmonary involvement, and the prostration was so slight that the patients continued their work. Parotitis, dysentery and meningitis were frequent complications. In all cases in which dysentery existed the patients died, and it was present in nearly all fatal cases. There were, in these cases, no gross intestinal lesions. In a large number of fatal cases extensive purulent meningitis was found, although there were, during life, no symptoms pointing to this condition. In these cases death was sudden and unexpected. Every stage of pneumonic consolidation was found post-mortem. Slight pleural and pericardial effusions were frequent. Pure cultures of the pneumococcus were found in the nasal discharge, the meningeal pus and the hepatized lung.

Epidemics of pneumonia have occurred on shipboard, as in the case of the two vessels in Halifax harbor; the ships Isle de France, Bourbon, and Sechelles, in Madagascar; the Alger, Cressy and St. Jean d'Acre, in the Mediterranean. Of 720 persons on board the Cressy 298 were attacked, and of 815 on board the St. Jean d'Acre 410 were affected. The disease was considered contagious, and seemed to be communicated to inmates of the Malta hospital by patients sent there from the ships.

In the Irish epidemic of 1854-5, and in the Italian outbreak of 1898, the disease was truly ephemeral.

The Boston epidemic of 1876 was characterized by a slow and insidious invasion, a prolonged course and frequent hemorrhages.

The Moringen prison epidemic presented such unusual features as diarrhea, enlargement of the spleen, albuminuria and acute nephritis, pleuritic effusion, pericarditis, meningitis and great prostration.

In the epidemic of Deri Gazi Kahn, in which 40 out of 550 persons lost their lives in a few weeks, the local morbid process proceeded with the utmost rapidity through all the stages of inflammation to suppuration, abscess and gangrene. Both lungs were usually affected, and after death were found to be, to a great extent, disorganized. The pleura were generally thickly covered with lymph and the cavities filled with a dirty sanguinolent

fluid. The blood was thin and refused to coagulate. The teeth were covered with sordes, and, from the first, prostration was profound.

In the Rouen epidemic a purple eruption covered the body; the face was pale, the tongue dry and the abdomen tympanitic; the lungs and stomach were often gangrenous; almost all the patients had a fetid diarrhea. Purpura and helminthiasis were prominent features of the Provence, and of the Languedoc outbreaks. Almost every patient in the Loberg epidemic had icterus. Herpes was present in all the Oberlahnstein cases. In the London epidemic of 1853 the malady was characterized by extensive pleuritic effusion, with little pulmonary consolidation. In the widespread epidemic in Europe, about the middle of the seventeenth century, convalescence was often delayed by abscesses, especially in the region of the clavicle. Swelling of the joints was present in some of the Middlesborough cases.

In the South-of-England epidemic of 1740-46 the disease was marked by expectoration which was thin, yellowish or bloody, offensive and so acrid as to cause soreness of the pharynx. Profuse sweating and petechia were harbingers of death. In the Urbino epidemic of 1602 the pericardium was very often found full of fetid fluid. In the Phillipsburg epidemic of 1689 the lungs were often gangrenous, and heart-clot was frequent. In the Minster and Loramies epidemics of 1879 multiple cases in infected houses was the rule, delirium was present in almost every case. In the Amberg prison outbreak 161 of 1,150 persons were affected; cases occurring until the walls were scraped and cleaned. In the Peshawar epidemic of 1895 there were 34 cases in a regiment of 573 men, the outbreak continuing until the camp was removed at the end of fifty-three days. It is interesting to note that there occurred a severe epidemic of pneumonia in this regiment at the same place, sixteen years before.

The peculiarities of symptomatology witnessed in epidemics of pneumonia are interesting in the extreme, and it is with regret that I am constrained, by narrowness of scope and lack of time, from entering upon an analysis of these, as reported in the literature.

A FEW REMARKS ON THE PROPER CLEANSING OF A RUNNING EAR.[1]

BY H. A. ALDERTON, M.D.,

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Those who are connected with a number of institutions, general and special, will agree that the results obtained from their prescribed treatment of running ears vary greatly according to the ability of their subordinates who are intrusted with the carrying out of the treatment. And the writer knows of no one thing of greater prophlactic value than this same ability correctly and thoroughly to do the work prescribed. Many of the complications that frequently attend the course of an ordinary middle ear abscess may be avoided by the tact, courage and knowledge of a capable assistant at the bedside of the patient, and the dangers that surround such a patient are greatly magnified by the employment of an inexact, timid and ignorant attendant, who perfunctorily employs the apparatus appropriate to the case in a half-hearted way. This danger is also increased by the lack of frequent and adequate supervision on the part of the attending physician. We well know that we much more frequently have to deal with a complicating eczema, furunculosis, or mastoiditis in cases nursed at home by a member of the family, under our direction or under that of the family physician. This also holds true when the treatment is done at a general hospital, under the supervision of a house staff, with a very superficial knowledge of the organ and very little opportunity of increasing their knowledge of the diseases treated. Likewise, we more frequently see an acute process become chronic or an otorrhea persistent after a mastoid operation, under like circumstances; whereas, on the contrary, we frequently have the pleasure of seing even an old, foul, running ear become clean, inodorous, quiescent or even healed under the competent ministrations of a nurse in a hospital especially devoted to the treatment of diseases of this organ The only secret lies in the knowing how, the genius that comes from taking infinite pains.

First, let us consider the necessary steps that confront us when we are about to attend the birth of a running ear, which is to follow the doing of a paracentesis of the drum membrane for an acute middle-ear abscess. If there is any place for asepsis in ear surgery it is just here at the very beginning of our surgical interference. The canal of the ear should never be treated as beyond suspicion, but should be handled as a dangerous criminal lying in wait to do untold harm. Every vestige of cerumen and epithelial débris should first of all be removed by careful syringing and wiping with cotton pledgets and all hairs around the orifice clipped to the surface. The ear canal should then be syringed with a solution of tincture of green soap in water at 110° F., until the skin surface looks perfectly clean. Afterward the canal should be filled to overflowing with 95 per cent. alcohol, which is permitted to soak in for at least five minutes and then allowed to flow out of the ear, without wiping. The canal is then syringed with a solution of bichloride of mercury 1 to 2,000 of sterile water at 110° F.; following this the ear canal is thoroughly dried out with pledgets of sterile cotton or gauze. Meanwhile the necessary instruments, an ear speculum and a sharp-pointed scalpel or bistoury, have been sterilized by boiling in a soda solution. Under good illumination the cut is made in the posterior inferior quadrant of the drum membrane and the extruded fluid and blood carefully wiped out with sterile cotton or gauze. The end of a thin strip of sterile gauze, half an inch wide and a couple of inches

[1] Read before the Section on Otology of the New York Academy of Medicine, March 9, 1905.

long is then carried by means of a pair of angular ear forceps just up to the membrane, the strip lying loosely in the canal and the other end lying outside in the concha, which has partaken in the cleansing process. The concha is now loosely packed with gauze and this is covered with absorbent cotton held in place by strips of adhesive plaster.

Subsequent dressings should take place two or three times daily, omitting the syringings, under the same antiseptic precautions. The strips of plaster are easily detached by the use of benzine. In case the discharge is too profuse for this method of treatment, then a change must be made after a trial of twenty-four to forty-eight hours. The writer believes that where adequate drainage up to and through the drum membrane is possible, this method of treatment will bring about a quick and perfect healing, in the majority of cases.

Suppose now that we have to change our methods because of the profuseness of the discharge saturating the dressings and so establishing a channel of further infection from the outside, or that we first see the case after a spontaneous perforation of the drum membrane, how shall we meet the indications? In these acute cases the writer if of the opinion that there are only three necessities within our sphere of action: (1) the removal of the accumulating discharge from the ear canal, (2) the rendering of this canal as little septic as is possible, (3) the administration of systemic remedies with a view to modifying the intensity of the middle-ear inflammation. We certainty cannot hope to introduce any remedy efficiently into the middle-ear cavity, and the benefit to be derived from moist heat by means of syringed fluids is, to say the least, problematical, while the danger of irritating the middle-ear structures by forcible syringing is not to be forgotten.

It is just here that we find our greatest comfort in an able assistant, one who can periodically, at intervals of three or four hours, gently and efficiently irrigate the ear with aseptic water or a weak solution of carbolic acid or bichloride of mercury, etc., according to the preference of the attending surgeon. The solutions should be used at a temperature of from 110° to 120° F., about one quart being used at a sitting. Should the patient complain of dizziness or pain, the temperature or force is to be moderated.

In the opinion of the writer, the most efficient method of douching the ear consists in using an apparatus constructed by attaching to the hard rubber terminal of an Alpha "E" constant flow syringe, made by Parker, Stearns & Sutton, of New York, about two feet of three-eighths-inch soft rubber tubing, the other end of which tubing is supplied with the glass terminal of an ordinary straight medicine dropper. The proximal end of the syringe lies in the bowl or pitcher of aseptic water and the distal end is introduced to just within the orifice of the ear canal and just so much or so little force can be utilized as seems necessary at any step of the proceding without any disturbance of the apparatus or of the patient. The ear can be syringed without disturbing in any way the position which the patient finds most comfortable, nor is it necessary to exert any traction on the auricle, which by the older methods is often the occasion of considerable discomfort to the patient and, in children, of struggling and annoyance. The water, as it comes from the ear, is caught in a pus basin adapted to the patient's shape and held by the patient or an attendant. Good illumination is necessary.

After syringing, the ear canal is thoroughly dried with pledgets of cotton rolled up on a cotton applicator so as to be small but firm in the body, but fluffy on the end which is to be introduced into the ear canal. These pledgets should be two inches long and removed from the applicator before introducing them into the ear canal. They are to be carefully introduced and left in for a couple of minutes; a few should be used at each sitting. Then a wick of gauze should be introduced gently and carefully into the canal without packing and a soft wad of cotton loosely placed in the concha of the auricle. The attending surgeon should see the patient at least once a day to supervise the procedure on the part of the nurse and also to wipe away any little masses of epithelium and to treat any irritation of the skin of the canal or any uncleanly condition of the canal from inspissation of the discharge. As the discharge diminishes and the other symptoms abate, so should the frequency of cleaning the ear decrease.

Right here, the writer feels that a word of caution might not be amiss; peroxide of hydrogen, a favorite remedy with many general practitioners, should never be used, either in solution or in the form of drops in a case of acute middle-ear abscess, its use not being necessary to cleanse the canal and its dangers from increased tension and dissemination of infection, should it attain the middle-ear cavity, being beyond computation. In fact, the use of drops in an acutely running ear is as unnecessary as often unduly hazardous. Inflation of the ear, in these acute cases is also, in the opinion of the writer, a doubtful procedure, except it be done for well grounded and conservative indications, such as the effort to determine the patency of the perforation.

When we come to consider the cleansing of an ear, the seat of a chronic middle-ear abscess, we must be prepared to conform our efforts to the conditions present, and must extend our invasion to the cavity of the middle ear itself. Should the perforation be small but well placed for drainage, at the lower end of the drum membrane, we may succeed in our attempt to cleanse the middle-ear cavity by bringing to our aid inflation, or aspiration, or syringing with a Buck's middle-ear pipette, afterward drying out with cotton on a slender applicator. The appropriate remedies may then be applied hopefully. Peroxide of hydrogen again should not be used in this class of cases for obvious reasons, and remedial drops should be used by instillation or by the pipette only after

thorough cleansing, if any impression is to be made upon the mucous membrane.

If the perforation is small and situated anywhere in the upper half of the drumhead, the writer believes that the chances are against any permanent cure in most cases of chronic abscess, unless the perforation is adequately enlarged downward to the lower edge of the drum-membrane, so as to provide for thorough drainage and cleansing of the tympanum.

A chronic middle-ear abscess with a perforation situated in Shrapnell's membrane demands syringing by means of an especially devised canula, Hartmann's being the best; and this canula can be used in connection with the writer's syringe or with a douche bag suspended above the level of the patient's head. Buck's pipette is too small and lacks force; Blake's middle-ear syringe is objectionable because its canula has a rigid connection with the syringe and the movement of the syringe is transmitted; the bore of the canula is also too small and the quantity of water used so limited that its temperature cannot be controlled. Both instruments, however, are valuable for applying medicated solutions.

All granulations must be attacked and destroyed before an ideal cleansing of the tympanic cavity is possible.

A good-sized perforation of the drumhead simplifies greatly the process of cleansing the tympanum, for we can introduce the Hartmann canula easily, and by rotation send the stream of water in all directions, thus thoroughly flushing out the cavity. We have an adjuvant of great value in the use of weak solutions of adrenalin chloride, which by shrinking the mucous membrane renders all the following steps in the cleansing process easier of attainment. Needless to say, the ear canal should receive the same attention along similar lines as in the acute cases, no matter which of the above conditions obtain.

Cleansing the running ear by means of syringing with watery solutions has the well-known disadvantage of encouraging an edematous condition of the mucous membrane, the development of granulation tissue, an osmotic flow from the blood vessels, and an increase in the secretion from the glandular apparatus. Therefore, it should be our aim to decrease the frequency of syringing and substitute for it dry methods of cleansing in direct proportion to the diminution in quantity and virulence of the discharge. As we progress, the treatment should come more and more into the the hands of the surgeon himself, the cleansing being done personally by him daily or less frequently, as may be indicated; the aim being to dry out the ear canal and the tympanum with as much gentleness and patience as possible, then to apply the remedies used to suit the case in such fashion that only those parts receive the application that need it.

As means to the attainment of this dry form of cleansing, we have the use of the cotton pledgets on or off the applicator, the gauze sponge, the gauze drain, which should always be applied loosely, the use of inflation or aspiration, the various soluble antiseptic powders applied in extremely small quantity just so as to coat the surface, the administration of small and repeated doses of belladonna, and patience—always patience.

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MEDICAL PROGRESS.

SURGERY.

Hand Sterilization.—In carrying out hand sterilization, mechanical and chemical methods are employed. (1) *Mechanical.*—Careful use of a stiff nail brush with soap and hot water removes many bacteria and attaches superficial epidermal cells and grease with contained organisms. The time required and the injurious effect on the hands render it beyond the limit of practicability to produce efficient sterilization by this method alone. (2) *Chemical.*—Ordinary operating-room methods are to a considerable extent inefficacious in rendering the hands sterile. The fact that cultures of the staphylococcus could be obtained from an inoculated silk thread after thirty minutes in a watery solution of corrosive sublimate (1 in 1,000) speaks for the weakness of this popular preparation. Absolute alcohol has but slight germicidal power, but the diluted fluid (70 per cent.) has a far greater action than a watery solution of bichloride or biniodide of mercury (1 in 1,000) or a saturated solution of permanganate of potash. Prolonged use of alcohol, however, will cause pain, roughen the skin and may produce eczema. J. C. Webster (*Am. Jour. Obstet.*, April, 1905) has held that the ideal cleansing agent must be a solution capable of dissolving fatty matter and of penetrating the epidermis, strongly germicidal, rapid in action and non-injurious to the skin. After long experimentations the writer suggests the unpurified clove oil an approach to the ideal. After five minutes' scrubbing with soap and hot water the skin should be dried with a sterile towel and rubbed for one minute with alcohol to remove any remaining moisture. Clove oil is then rubbed into the skin for five minutes and afterward washed off with alcohol. A slight burning sensation may result, but the skin is not injured. The hands should then be covered with dry sterile rubber gloves. Wet gloves macerate the skin, which may readily yield organisms which have not been destroyed through any undetected hole in the glove. The use of various "hand coatings," wax paraffines, rubber solutions are not to be recommended, as they are prone to crack and peel off in long operations.

Method of Uniting Intestines of Very Small or of Unequal Caliber.—J. Shelton Horsley (*Am. Med.*, April 29, 1905) gives a new operation adapted to these conditions. It is impossible to describe the operation satisfactorily without the illustrations. Much of the paper is taken up with experimental work involving the process of repair in intestinal union after suture. The experiments are given in detail, and seem to demonstrate that something more than approximation is needed to secure satisfactory union. A small area of two peritoneal surfaces sutured together was found not to adhere except where there was pressure or some cause besides mere approximation to excite hyperemia of repair. He contends that uniform pressure along the margin of the intestinal wound is necessary, and that this condition is filled by the continuous suture, but not by the interrupted. Photographs of intestines operated upon with casts, showing their caliber at the point of union, are given.

Biliary Drainage in Operations on Gall-Bladder and Biliary Ducts.—Eugene A. Smith (*Am. Med.*, April 29, 1905), says, judging by his experience of 40 cases in 90 per cent. of such operations, biliary drainage after operations upon the gall-bladder and biliary tract is wise. We must consider such disease as due to infection and the continuation of the infection with exacerbations and periods of quiescence, and with gallstones as an accompanying factor and a result of the infection, cholecystitis and cholangitis, not cholelithiasis, must be diagnosed. Early biliary drainage for cholecystitis and cholangitis is urged to prevent alteration of structure in the biliary tract and dangerous complications due to local peritonitis and adhesions with consequent disturbances of nearby viscera of associated digestive function, especially the pancreas. Biliary drainage in the majority of cases is best carried out by cholecystostomy, which is easier and safer than cholecystectomy. The latter is indicated for stricture of the cystic duct, in cases with thickened, distorted, perforated or gangrenous gall-bladder, and when malignancy is suspected or found. Cholecystectomy should be accompanied by drainage of the cystic duct below the point of removal of the gall-bladder. Patients suffering from the toxemia of cholemia long continued, should be offered exploratory operation and biliary drainage by cholecytostomy or cholecystenterostomy. Obstruction of the common duct by stricture and chronic pancreatitis may be thus treated with good hope of cure by this procedure, and in malignancy life is prolonged with comfort. The author describes at some length the technic of his operative work.

The Surgery of the Posterior Mediastinum; Its Past and Its Future.—Operations upon the posterior mediastinum have been looked upon as being of such a serious nature and attended by such a high mortality that surgical technic in this direction has been more or less neglected when compared with the revolution which has given to modern surgery a scope far beyond the dreams of our predecessors. J. D. Faure (*Bull. Johns Hopkins Hosp.*, April, 1905) reviews the work that has been done upon this subject, and shows the impracticability of thoroughly dealing with affections of the posterior mediastinum by the methods advocated by Rehn, Wassolow, Tuffier, Potarea, etc. The author relates two cases in which he operated by a method of his own, and while he was successful in performing the operations without accident, and even without difficulty, both patients died as a result of unforeseen conditions. The two cases operated upon had a cancerous growth of the esophagus situated behind the bifurcation of the bronchia and the lung.

The author in describing his technic states that other operators limited their resection to three or four ribs in gaining access to the posterior mediastinum. He emphasizes the fact that to see clearly and freely, it is necessary to include the first rib in the costal resection, this being the main step governing the operation. So long as the first rib is intact it is impossible to make an extensive manipulation in the posterior mediastinum, and even if all the other ribs from the second to the eighth, or even the ninth, be removed, the first rib still fixes the shoulder and all the adjacent parts of the chest immovably to the vertebræ column; if, on the contrary, the first rib is resected, or even simply divided, the corresponding half of the chest is immediately loosened from the backbone, while the shoulder is pushed aside to such an extent that it becomes necessary to hold it to avoid wrenching the root of the brachial plexus. The posterior mediastinum then opens like a book, and nothing is easier after detaching the pleura and apex of the lung, than to reach its depths and execute all possible maneuvers. In the author's cases he used the above method, and was able to explore the posterior part of the trachea and bronchia, to dissect the pneumogastric nerve behind the pedicle of the lung, and to make, in short, all the manipulations necessary to success in a complicated operation, such as the extirpation of a part of the thoracic esophagus. This new technic has brought the most difficult operations on the posterior mediastinum within the range of possibility. Only experience can show what the future has in store for them. It is, of course, evident that this class of operations must always be of a serious character, since the life of the patient is at stake, and they are indicated only in cases where all other means of treatment have been tried in vain, and where life is in immediate danger, such as cancer, foreign bodies in the esophagus, or suppurative mediastinitis.

Spinal Anesthesia with Stovaine.—Stovaine, a synthetic product, belonging to the class of anesthetics, is warmly recommended by T. Tuffier (*Wiener klin. therap. Woch.*, April 9, 1905) as a substitute for cocaine in spinal anesthesia. Five centigrams of the drug in 10 per cent. aqueous solution are generally injected into the dural sac in the usual way. The anesthesia appears somewhat sooner (in four to five minutes) than with cocaine and usually lasts three quarters of an hour. During the operation, bad after-effects were never seen. The patient retains his color, and perspiration, vertigo or nausea, such as are common with cocaine, do not appear. After the operation, the patients feel perfectly well, and often take solid food on the same day. If the cerebrospinal fluid is again aspirated, after the stovaine solution has ben injected, it will appear opalescent, probably because the stovaine has to some degree precipitated in contact with the alkaline fluid. This is the chief reason why the drug is so harmless, for less will reach the centers of the medulla.

Treatment of General Peritonitis.—This subject is carefully considered by Barth (*Deut. med. Woch.*, March 9, 1905), who believes that gastric lavage is very useful for combating the tympanites and intestinal atony following operation. Before vomiting has begun, the introduction of the stomach tube will reveal the presence in the stomach of a large amount of material regurgitated from the intestines. The return of peristalsis may also be assisted by the performance of enterostomy, which may sometimes be done without any general anesthetic. Through the operative wound it is always possible to reach a loop of gut, which may, if necessary, be stitched to the parietal peritoneum. A puncture of the intestine is then made with a small, fine trocar, to which a rubber tube is connected. This apparatus is held in place by a dressing. When the trocar is removed, the wound in the gut closes and heals without the introduction of any sutures. If the operative wound cannot be used for the purpose, then a small opening may be made in either side of the abdomen. The writer reports eleven cases in which this procedure was adopted and in seven the patient was apparently saved by the operation.

The Toxic Action of Chloroform on the Kidneys.—As the result of an extensive series of experiments carried out in animals, Offergeld (*Arch. f. klin. Chir.*, Vol. 75, No. 3) found, that chloroform anesthesis causes a more or less transitory fatty degeneration of the uriniferous tubules of the kidneys. Where the latter organs have been weakened by a specific disease or by some constitutional condition, such as cachexia or arteriosclerosis, this involvement is much more extensive and pronounced. Pregnancy *per se* does not result in

any marked predisposition. Rapidly succeeding anesthesias are to be avoided as much as possible. The addition of oxygen in the mixed chloroform-oxygen narcosis, seems to inhibit the toxic action of the chloroform.

Hysterectomy for Fibroids of the Uterus With a Report of 250 Operations.—John B. Deaver (*Am. Med.*, April 15, 1905) says his experience with uterine fibroids has led him to hold the following opinions: Fibroids of the uterus do not not require removal unless they are productive of symptoms, but that when they do become symptom-producing, they should be removed promptly, before the patient has been weakened by toxemia, hemorrhage, or sepsis. Abdominal supravaginal hysterectomy is the operation to be preferred in the vast majority of cases. Myomectomy is applicable only to younger women in whom the tumors are few in number and superitoneal in character. Panhysterectomy is to be employed only when intraligamentary growths, whether uterine or ovarian, render the performance of supravaginal amputation difficult or dangerous. The ovaries, or a part of one ovary should be preserved in every woman who has not reached the age of the menopause, unless they are distinctly and indisputably diseased, or unless their retention would needlessly prolong and complicate the operation.

When to Perform Myringotomy and the Mastoid Operation.—E. Amberg (*Med. Rec.*, April 15, 1905) cites a large number of authorities, the consensus of whose opinion seems to be that early incision of the drum membrane and early operation in mastoiditis are the courses of election. The author divides the cases of acute mastoiditis into three groups: (1) Those which take a rapid course, clearly showing alarming local and general symptoms, especially of a toxemic character, and which do not respond to palliative measures. (2) Those which take a somewhat more protracted course, extending over a period of one or several weeks, exhibiting plain local symptoms, but which are not accompanied by intense pain nor by a grave affection of the whole system, and which, at least temporarily, respond to palliative measures. (3) Those which take a mild course. The first type should be called mastoiditis acutissima; the second, mastoiditis acuta; the third, mastoiditis subacuta. In general, when deciding whether to operate or not to operate in a case of mastoiditis we had better err to the safe side and open the mastoid. We can never come too early under any consideration, but we may in some cases miss the right time and be too late if we hesitate. An antrotomy in acute mastoiditis can be compared to a myringotomy in acute suppurative otitis media.

MEDICINE.

Adaptation and Tuberculosis.—J. G. Adami (*Am. Med.*, April 29, 1905) emphasizes the fact that in infectious diseases in general, while the bacteria grow more particularly in one organ or tissue the successful counteraction of the disease is not a local matter. In fact, the tissues of the infected organ are so injured that they cannot themselves play any very active part. The counteraction is by the rest of the organism; in part by the leucocytes developed in the bone marrow and elsewhere, in part by other tissues, which discharge into the blood diffusible antitoxic and bactericidal substances. He calls attention particularly to the recent observations of Wright and Douglas that the phagocytic activity of the leucocytes is not called into play to any extent unless the blood serum contains certain substances which activate the leucocytes. These substances appear to be developed apart from the leucocytes, that is to say, by other tissues of the body. Applying these considerations to tuberculosis, he points out that when the tubercle bacilli grow locally there is a slow diffusion out of their toxins; and it is by the adaptation of the rest of the tissues to these toxins that the leucocytes and these other tissues become accustomed to produce diffusible antibacterial substances. In favorable cases these are present in amounts so considerable that the local growth of the tubercle bacilli is arrested and healing tends to ensue. Post-mortem observations show that this arrest is the rule rather than the exception. Applying these considerations to the treatment of tuberculosis, he shows first, that the tuberculin treatment is but an attempt to carry out the natural process; that tuberculin is merely a concentrated extract of the toxins of the bacilli, and these now are injected into the organism at a distance from the site of local growth of the bacilli. Their action must be to stimulate the cells of the rest of the organism, and to produce increased amounts of antibacterial substances. The cells, however, may be in a state of low vitality so that they do not react, and hence this treatment is by no means constantly successful. Modern treatment similarly, he points out, is a carrying forward of the same idea. The disease as such is felt severely alone, every attempt is made to improve the general tone of the organism by rest, good food, and fresh air. The cells gain improved tone and respond to the toxins, producing increased quantities of the antitoxic and antibacterial substances. Here, again, it is the body as a whole and not the local reaction that brings about arrest of the tuberculous process. The adaptive processes on the part of the bacilli are next considered. These also are capable of being modified according to alterations in their environment, so that by passage they are found to adapt themselves more and more to the organism of any particular species. By passage through the organism of one species the bacilli become more and more virulent for that species, and thus may become less adapted to growing the organism of another species. Dr. Adami is of the opinion that this is the case in general, and with tubercle bacilli grown in the human bovine organisms respectively in particular.

Cerebrospinal Fever.—J. C. Wilson (*Journal A. M. A.*, April 29) reviews the history, causes, symptoms, treatment, etc., of epidemic cerebrospinal meningitis, a disease which has at present a special interest on account of the lately occurring epidemic in New England and in New York. While it has been recognized for about a century, most of our knowledge of the disorder has been acquired of late years, and largely through the work of our countrymen, Councilman, Mallory and Wright. Councilman's recent paper (*Journal A. M. A.*, April 1, 1905) is referred to by Wilson. Formerly the communicability of cerebrospinal meningitis was doubted, but it is now admitted that if the nose, ears or lungs are affected, it may readily be conveyed from one person to another. Second attacks are very rare; it is probable that one attack confers a persistent immunity. The germs are found only in connection with the lesions of the disease, but mixed infections are not uncommon. The symptoms are most diverse, there are no prodomes, and the period of incubation is unknown. In the malignant cases the symptoms of inflammatory lesions of the brain and cord and those of a general malignant infection are both overwhelming. The author goes at some length into the description of the general symptoms and those of the anomalous types, the fulminant form, the abortive, the intermittent and the chronic types. Few diseases vary more in their severity and mortality, or are followed by more complications. The

diagnosis may be difficult, but if meningitis be present, it is not usually embarrassing during an epidemic. In doubtful cases lumbar puncture should be resorted to, and the presence of the meningococcus in the cerebrospinal fluid ascertained. The differential diagnosis between this form and tuberculous meningitis may, in some cases, be far from easy without this. The mortality of different epidemics varies between 20 and 75 per cent.; the average is estimated by Wilson as near 40 per cent. In the mildest cases no treatment is required; in the malignant ones none is effective. Quiet, nutritious diet, cold applications to the head and spine, laxative doses of calomel in the beginning of the attack and opium are recommended, the last-named drug being regarded as indispensable. For prophylaxis, cleanliness and avoidance of overcrowding in times of epidemics, isolation and sterilization measures, and in case of successive attacks in the same family, abandonment of the dwelling and thorough disinfection are advised.

Treatment of Gonorrheal Arthritis by Hyperemia.—JOHANNES VON TILING (*Journal A. M. A.*, April 29) has secured excellent results from Bier's method of damming back the circulation with elastic bands in several painful cases of gonorrheal arthritis. He advises the use of a thin, pliant rubber bandage, applied so as not to cause discomfort, but sufficient to produce very perceptible hyperemia. Blueness and coldness of the limb, white or vermilion spots and pain or paresthesia indicate that the bandage is too tight and should be loosened. Properly applied, the most marked first effect is relief of pain, but this is not all; damming, he claims, has a bactericidal effect, and dissolves away the adhesions which are completely removed by massage after the removal of the bandage. At first the bandaging should be of short duration, a few hours at a time, but later it should be increased until it reaches ten hours a day and ten hours at night. After removal of the bandage, massage lightly, then have the patient stand and move the joints. He claims that this method gives better results in most cases of gonorrheal arthritis tending to stiffness of the joints than any other.

Experimental Researches on Renal Dropsy.—It has been assumed that the production of dropsy in renal disease is due to the retention of solid materials in which renal insufficiency is the main factor. Particular importance in this connection has been ascribed to the chlorides, but P. F. RICHTER (*Berl. klin. Woch.*, April 3, 1905) believes that dropsy and insufficient excretion of sodium chloride are not dependent one on the other, and the association is by no means constant. Experiments were carried out in rabbits, and it was found that the administration of uranium nitrate was followed by condition of acute nephritis accompanied by transudation of fluid into the serous cavities and edema of the skin. Both of these conditions were dependent upon the simultaneous administration of large quantities of water. When in other animals, sodium chloride was added to the water, no greater increase in the amount of fluid was noted. Experiments with milk and mineral waters, containing different percentages of salts, also showed that it was not the salts, but the quantity of fluid which was responsible for the production of the transudates. These facts have an important bearing on the question of renal dropsy, particularly as regards its prevention and treatment in the acute forms of the disease. The regulation of the amount of fluid to be given is therefore of the greatest importance in making up the dietary. Whether the increased ingestion of fluid has any effect on the heart in bringing about a muscular insufficiency, as is claimed by many writers, need not be discussed here, but the author believes that his experiments have demonstrated that the ingestion of an abundance of fluid does not produce a flushing of the system, together with a removal of the waste products, nor does it relieve the inactivity of the kidney. It seems more probable that the water remains in the system and induces a tendency to the production of a nephritis. This also applies to the exclusive milk diet advocated in acute nephritis and the administration of mineral waters. In the dietetic treatment of nephritis, these points deserve more attention, as it appears, than the sodium chloride content of the food and the osmottic changes dependent upon it.

Action of Roentgen Rays on Normal Blood.—A large number of healthy animals were exposed by E. HELBER and P. LINSER (*Münch. med. Woch.*, April 11, 1905) to the prolonged action of the Roentgen rays, with the following results: The first change noticed is a diminution of the number of leucocytes. In small animals, such as rats, the blood will be entirely free from white cells after an exposure of five to ten hours; in rabbits seventy hours or more will be necessary, while dogs will always retain a small percentage. Some of the animals were killed soon after exposure; but no retention of leucocytes was found in the internal organs. If the exposure was continued, the leucocytes reappear or increase again in number for some time until the hematopoietic system is entirely exhausted, and a final drop is the result. The lymphocytes seem to be especially sensitive to the action of the rays, and their nuclei soon lose the power of taking up specific dyes. All these changes were observed, even after the spleen had been extirpated. The red cells were affected much later, and then only the changes of a simple anemia are observed. The number of blood-platelets did not undergo any changes, even when no leucocytes were present, hence it is improbable that they are derived from the latter. At autopsy, very few changes were found in the internal organs, except in the kidneys, which almost always gave evidence of acute nephritis. Ulceration of the skin or loss of hair was not seen, probably since the animals were allowed a certain freedom of motion, and the action of the rays was not concentrated upon one portion of the body.

Imitation of Biological Action of Light Rays.—If lecithin is exposed to the action of the Roentgen or radium rays, it will become decomposed, so that it will no longer be harmless if injected into the tissues of animals. Strangely enough, R. WERNER (*Münch. med. Woch.*, April 11, 1905) found that the changes induced by this altered lecithin are exactly the same as are noticed after exposure to the Roentgen or radium rays (dermatitis, necrosis of the skin). The same effects may be obtained by digesting lecithin with pepsin, or by ozonizing it. Cholestearin, oleic acid and other substances may be substituted for the lecithin. Experiments are being conducted to determine if the therapeutic effects of the Roentgen or radium rays may be imitated by these altered chemical bodies.

Observations on Pneumonia.—A study of autopsy records tends to suggest that in the majority of cases pneumonia is a general disease, while in a smaller number of cases the process is localized in the lung. D. E. KEEFE (*Boston Med. Jour.*, March 30, 1905) considers the presence of the pneumococcus in the blood as significant of failure on part of the organism to localize the infection in the lung, and an indication of the presence of excessively virulent organisms or low individual resistance, a condition which increases the gravity of the prognosis. Early leucocytosis is the rule in this disease. Cases of low leucocyte count ending in recovery may be explained by assuming the imprisonment of the

micro-organisms in the lung, the disease remaining virtually a local process. Absence of leucocytosis in the early period of the disease signifies a large dosage of virulent organisms overwhelming the patient's resistance, and is of unfavorable prognosis. The following treatment is suggested by the writer. Patients should lie on the sound side, supported with pillows, thus favoring the emptying of the vessels of the diseased lung by gravitation. Ice is applied to the affected side. This treatment may be augmented by wet or dry cups or leeches, and the use of counterirritants over the affected lung. Medicinally veratrum viride is of value to bleed the lungs into the abdominal veins and general capillaries. In the latter part of the second or third stage digitalis, ammonia, or whisky may be beneficial. Plenty of fresh air should be admitted, but the body covering should be sufficient to promote perspiration and dilatation of the superficial capillaries.

New Method of Testing Functional Power of Stomach.—The study of the functional power of the stomach has been greatly hampered by the fact that the only method in use is expression after a test meal has been given. This procedure is not only time-consuming, but actually fails in a large number of cases where the tube cannot be passed into the stomach properly. For this reason, Sahli (*Corresp. f. Schweiz. Aerzt.*, April 15, 1905) has devised a very simple method which merely requires an examination of the urine or saliva. It is a well known fact that connective tissue is readily dissolved in the stomach, but not only the pancreatic juice. If a small amount of iodoform or methylene by enclosed in a sac of goldbeater's skin, which is almost pure connective tissue obtained from the intestines of cattle, the small bag will only be dissolved in the stomach, if sufficient acid and pepsine are secreted. By testing the saliva for iodine, and by observing the first appearance of green urine, a good idea can be obtained of the amount of acid and pepsine present. Later experiments have convinced the author that the goldbeater's skin of the market is not sufficiently uniform in thickness, so that he now encloses the pill of idioform or methylene blue in a small bag of thin dental rubber, which is tied off by a thread of thin non-sterilized catgut. The latter is also dissolved only in the stomach in the presence of gastric juice, and never in the intestines. The amount of iodoform employed is one decigram of methylene blue, five centigrams. Other dyes or chemicals are not suited for the test.

OBSTETRICS AND GYNECOLOGY.

Uterine Hemorrhage After Extraction of Teeth.—The connection between menstruation and the condition of the teeth has been observed and commented upon by both gynecologists and dental surgeons. It is a well-known fact that the gums swell and bleed easily during the menstrual period. Anoufrieff (*Roussky Vrach*, Feb. 26, 1905) reports the case of a married woman of twenty-five, who suffered from profuse and repeated memorrhagia after the extraction of six roots, the loss of blood causing acute anemia, and even serious apprehensions as to the patient's ultimate recovery. It may be noticed here, en passant, that the author obtained the best results from a solution of adrenalin as a hemostatic. Toothache is said by some authors to frequently foretell the approach of the menstrual period; in some women bleeding from the gums at stated intervals may serve as vicarious menstruation, and it is of the utmost importance for the dentist and the surgeon to remember that odontalgia may in a woman simply denote the approach of menstruation, and not caries of the bone or irritation of the gums. The gynecologist should dissuade his patients, especially those who suffer from endometritis, from having their teeth extracted immediately before or after or during menstruation, and the dentist should refuse operative interference, especially as odontalgias may be controlled locally for a certain length of time.

Etiology of Eclampsia.—A very important observation, which may settle the etiology of eclampsia, has been made by W. Liepmann (*Münch. med. Woch.*, April 11, 1905). Normal placenta, when injected intraperitoneally into rabbits is usually not followed by any reaction, but if the placenta of an eclamptic patient is substituted the animals almost always die. Very soon after injection, the respirations become hurried; death sets in with the animals in the sitting position, and usually without the appearance of convulsions. It makes no difference if the solution employed is recent or several days old. It is very likely that the eclamptic poison comes from the placenta, the metabolism of which is altered in some unknown way. If it is possible to immunize rabbits against this toxin the serum treatment of eclampsia may yet prove successful.

Extra-Uterine Pregnancy with a Fully-Developed Fetus.—Among the comparatively infrequent cases of extra-uterine pregnancy those with a fully grown fetus are rather rare, and the case reported by Michin (*Roussky Vrach*, March 26, 1905) presents so much more interest. The patient, a woman of thirty-eight years, a 4-pasa, presented herself at the clinic with undoubted symptoms of extra-uterine pregnancy of seven months' duration. As the pregnancy entered upon the second half, and was not accompanied by any urgent symptoms the patient was advised to abstain from surgical interference as long as possible so that a live child might then be extracted. Patient was placed under the charge of the hospital attendants, and at the expiration of seven weeks, when she complained of very severe abdominal pains, great difficulty in urination and defecation and inability to stay even in bed, was operated on. The incision over the linea alba struck the placenta and brought on a severe hemorrhage. The entire operation lasted three-quarters of an hour, and the patient stood it well. The uterus was the size of a three to four months pregnancy, its adnexa were not in any way implicated in the process. The postoperative course was normal and uneventful. The stitches were removed on the twelfth day, and the patient left the hospital six weeks after the operation. The extracted fetus was alive (and remained so), and weighed 2,420 grms.; length of body 42 cm.; circumference of head 31.5 cm.

The Bacillus Aerogenes Capsulatus in Puerperal Infection.—The part played by the *Bacillus aerogenes capsulatus* in the production of puerperal infection is recorded by H. M. Little (in the *Johns Hopkins Hosp. Bull.*, April, 1905) based upon a study of ten cases. This organism was first isolated in a case of puerperal fever by Dobbin in 1897, and was considered by him to be the true etiological factor in the infection. His observation has been abundantly confirmed by observers in France and Germany, who described the organism under various names, all of which, however, are undoubtedly identical with the bacillus of Welch and Nuttall. Some of the names under which this organism has been described are as follows: (1) *Vibrion septique;* (2) *Bacillus phlegmones emphysematosæ;* (3) *Bacillus perfringes;* (4) *Bacillus emphysematis vaginæ;* (5) *The Granulobacillus saccharobutyricus immobilis liquefaciens;* (6) *Bacillus aerogenes aerophilis agilis;* and (7) *Bacillus septique aerobic.* The introduction into the pregnant or puerperal uterus may give rise to one or more of the following conditions: (1) emphysema of

the fetus; (2) puerperal endometritis; (3) physometra; (4) emphysema of uterine wall; (5) gas sepsis. The *Bacillus aerogenes capsulatus* may gain access to the uterine cavity in one of two ways. The first and by far the more usual, is its introduction by means of the examining finger or by instruments. By reason of its almost invariable presence in the feces of human beings, this is particularly liable to occur in spontaneous labor when the perineum and vulvar regions are insufficiently cleansed, as well as in operative cases in spite of this care. In the second place they may be present in the circulating blood, by which they are carried to the uterus, and then be cultivated from the lochial discharge. In the ten cases reported by the author seven followed operative procedures, and an eighth self-inflicted abortions. All of these had been repeatedly examined. In one case, however, which entered the hospital profoundly infected, the patient stated that she had not been examined vaginally. The organisms cultivated from this patient were obligate anerobes, and this was one of the cases in which the infection evidently took place through intestinal ulcers which were found on autopsy. The ideal treatment in these cases of infection is, of course, prophylactic, and this can be attained best by careful aseptic technic during labor. Should fever ensue during the puerperium the treatment should be along the following lines: (1) Removal of necrotic material offering a medium for growth of organisms; (2) establishment of free drainage from the uterus, and (3) stimulation of the natural resistance of the patient. The greater danger to be feared is the passage of the organisms from the uterus into the circulating blood. While patients with *Streptococcus septicæmiæ* not infrequently recover, all known instances of gas sepsis have ended fatally. If the infection be grave and definitely localized in the uterus, hysterectomy is justifiable, but theoretically, only when the infection is on the point of becoming generalized.

A Case of Tubal Pregnancy in Connection with Cancer of the Uterine Cervix.—There occur cases of extra-uterine pregnancy that are diagnosed accidentally while operating for some other condition. Thus Pokropfsky reports (*Roussky Vrach*, March 26, 1905) the case of a peasant woman of twenty-six years, who first complained of uterine hemorrhage and pain in the lower abdomen. Examination elicited cancer of the cervix, for which a complete hysterectomy was advised. The uterus and the left tube and ovary were removed in their entirety, while the right tube was found to contain a two-months old placenta, but the fetus could not be found. Both ovaries had undergone cystic degeneration, and presented a pathological picture of circumscribed chronic interstitial oophoritis due to syphilis or gonorrhea, in this case to the former, as was elicited from the patient's past history (infected by the husband and had five premature births). The post-operative course was, with few exceptions, comparatively uneventful and the patient was discharged cured. It is unfortunate that the author did not examine microscopically the findings in the right tube, but he makes his diagnosis of pregnancy first by exclusion and secondly because he found old blood coagula, among which there was a piece of more organized tissue, a break in the wall of the bag pointing to an increased pressure in the cavity, and loose coagula in the peritoneal cavity that evidently escaped from the ruptured tube. In addition there were sudden pains and hemorrhages from the uterus, which might be ascribed to rupture of the pregnant bag, with consequent escape of blood into the peritoneal cavity and the placenta; there thus occurred partial separation of the placenta from the uterine wall, a disturbance in the nutrition of the fetus and its consequent death; the fetus was evidently disintegrated and absorbed. As regards the cancerous process, its beginning must very likely be referred to a period of some two to six months before thte patient became really sick, although patient states that she had suffered from some indefinite pains some seven years ago. The case presents the very interesting feature of a combination of two serious maladies, either of which by itself might have eventuated fatally, but from both of which the woman's life was saved by timely surgical interference.

Breast Feeding for Infants.—A valuable contribution to the efforts now made to diminish infant mortality by insisting on the mother nursing her own child whenever possible, has been published by G. Martin (*Archiv f. Gyn.*, Vol. 74, No. 3), and is based on a series of 11,000 cases at the Maternity Hospital in Stuttgart. The mother's milk agrees with almost all infants, and not even a wet nurse is an efficient substitute. The indications against nursing should be restricted as much as possible, and in many cases the inability to nurse is only apparent and will not withstand serious criticism. The influence of nursing on the proper involution of the internal genitals is especially valuable in those women who may be compelled to take up manual labor after only a brief interval spent in bed. In the institution where the observations were made, it was found possible to increase the number of nursing mothers so that from 98 per cent. to 100 per cent. of the women were able to satisfy their children. Of the breast-fed babies, 40.9 per cent. reached their birth-weight on the eighth day, and 54.8 per cent. on the thirteenth day of the puerperium, while 25.4 per cent. of the bottle babies only reached their birth-weight on the eighth day, and 35.6 per cent. on the thirteenth day. An unfavorable effect of nursing on other diseases was never observed—in cardiac disturbances, the compensatory disturbances usually subsided, and in renal troubles, the albumin disappeared. These patients are, moreover, protected for a longer period from subsequent pregnancies, and the latter exert a much more debilitating influence than the nursing. Syphilis is not considered by the author to constitute a contraindication, if a shield is employed. He claims that the so-called psychical reasons for inability to nurse are merely unproven theories, and the secretion is entirely dependent on the stimuli which are exerted on the milk glands. Among the most marked reflex stimuli are the suckling efforts of the child, and the latter may prove sufficient to cause a return of the milk secretion even when this may have been interrupted for a period of several weeks or months. A mother must show a desire and inclination to nurse her child, and this is one of the most important factors. A determined effort should be made on the part of the profession to instil these thoughts into the minds of parents and nurses. If the baby is given the breast early and the efforts continued, the milk will appear with certainty in most cases.

EYE, EAR, NOSE AND THROAT.

Results of Magnet Operations.—Since the X-ray has become such a potent factor in localizing the foreign metallic bodies in the eye, a great deal of attention has been devoted to the magnetic method of removing them. Unfortunately, however, although a great many of these cases have been done, it is difficult to find records which deal with the after-conditions, especially in reference to sight. Leslie Buchanan (*Lancet*, January 14, 1905) reports the history of three cases in which metal chips have been

removed by the electromagnet. He concludes that what may be called useful vision may remain after the removal of a metallic chip from the eye. It is necessary that the extraction should be done as soon as possible after the injury. The utmost care must be taken that the point of the magnet is sterile, and it is essential that all forms of recognized ophthalmic and medical treatment should be used subsequent to the operation for the prevention of iritis and other destructive changes.

Bepold's Variety of Mastoid Disease, Complicating Diabetes Mellitus.—S. MacCuen Smith (*Am. Med.*, February 11, 1905), from a careful study of the literature and his own cases concludes (1) aural complications of diabetes mellitus may originate primarily in the mastoid cells; (2) the process may be manifested by the classic mastoid symptoms without involving the tympanic cavity; (3) this condition is peculiar to diabetes mellitus; (4) the term "diabetic ear" should be limited to those cases in which the disease begins as a primary osteitis of the mastoid, or in which primary tympanic involvement and rapid mastoid complications seem simultaneous; (5) while he believes it is advisable to reduce the amount of sugar when possible, in those cases showing an excessive glycosuria, unless the urgency of the local symptoms would demand immediate operation, he has not met any cases that terminated in what could be call postoperative coma.

Cataract, Choice of Operation.—S. D. Risley (*Am. Med.*, February 18, 1905) asserts that intraocular diseases, the result of prolonged eyestrain, or as a local manifestation of some general dyscrasia, *e.g.*, gout, rheumatism or diabetes, is not infrequently the cause of impaired nutrition of the crystalline lens and vitreous body, leading to opacity of the former and liquefaction of the latter. In these cases there is also great tendency to involvement of the posterior capsule of the lens and the contiguous cortex, *i.e.*, posterior polar cataract. Therefore cataract, even in aged people, should not be regarded only as an evidence of senility but as one phase of a pathologic process, a view which is enforced by the consideration that its occurrence is exceptional even in advanced age. Dr. Risley urges that a recognition of these complicating pathological states is important, both from the point of view of prognosis and the choice of operative procedure. He thinks that attempted extraction without iridectomy is not advisable in these eyes as the pupil is rigid and the lens not readily delivered. He advises preliminary tridectomy, to be followed by extraction a month or more afterward. A choice can then be made between extraction of the lens in its capsule, in which case a Kalt stitch should be employed, or by the more usual method which usually requires a third operation, a capsulotomy to secure an opening through the opaque posterior capsule, which should be done with two suitable capsulotomy knives, in order to avoid traction upon the ciliary region.

X-ray Therapy in Trachoma.—Some two to three years ago Mayou, Cassidy, Rayne and others reported favorable results in the treatment of trachoma with Roentgen rays. Vassintinsky (*Roussky Vrach*, January 8, 1905) bases his experience on the observation of seven cases from which he draws the following conclusions: (1) The effect of the X-ray therapy on the trachomatous process is beyond doubt, as evidenced by the decrease of the infiltration, the disappearance of the granules and the pannus, and a marked improvement of the subjective painful sensations. (2) It can be stated in a general way that the trachomatous granulations tend toward slow disappearance under the influence of radiotherapy; its influence on the infiltration is more marked; pannus is very favorably affected by the method of treatment (3) The author is unable to report a single case of complete cure of the trachoma, notwithstanding the great number of sittings, as well as their length He thinks, however, that this may be due to some other causes, such, for instance, as frequent interruptions, the consistence of the tubes, which exert a certain effect on the power of the rays as emanating from the radiogenous tubes. (4) The tendency of the tissues to cicatrization was rather insignificant under this line of treatment. (5) As compared with other methods of treating trachoma (the expression of the granules, etc.), X-ray therapy is rather less effective in the form of trachoma unattended with deep infiltration (the so-called follicular conjunctivitis). (6) The author failed to observe any harmful results from radiotherapy either directly to the eye, or in the form of any dermatites (7) Radiotherapy is entirely painless. (8) Those cases of trachoma which are not amenable to the ordinary method of treatment or which proved to be unyielding to same, are beneficially influenced by the X-ray treatment, and should be subjected to it. Finsen's method is as yet sub judice in ophthalmological practice. As regards trachoma, some authors recommend the ultraviolet rays as obtained from various sources, but the results can not as yet be given with any positiveness.

PRESCRIPTION HINTS.

Treatment of Hiccough.—Hiccough is a phenomenon not always easy to determine the cause and frequently difficult to cure. Professor Robin, in one of his clinical lectures, cites the case of a man who came into the hospital three times for this affection Anti-spasmodics were employed, but they seem to have rather accentuated the spasms. A closer examination revealed that the patient suffered for some time from dyspepsia, which was probably the exciting cause. Mr. Robin prescribed consequently, and with success, five drops, four times a day, of the following mixture:

℞ Picrotoxin ..... gr. i
Proof spirit ..... q.s.
Hydroch. of morphine ..... gr. i
Sulph. of atropine ..... 1/8 gr.
Ergotine ..... gr. xv
Cherry laurel water ..... ʒ iii

And the following powder:

℞ Calcined magnesia ..... gr. xxx
Bicarb. of soda ..... gr. xx
Lactose ..... gr. xx
Codeine ..... 1/8 gr.
Subnitrate of bismuth ..... gr. xv
Chalk ..... gr. xv

For one powder, three daily.

At the end of two days of the treatment, the patient left the hospital cured.

Acute Coryza.—This troublesome affection is frequently rapidly alleviated by the following powder:

℞ Salicylate of soda ..... ʒ ss
Dover's powder ..... gr. xxx
Essence of peppermint ..... ♏ xi

Divide into 10 powders One every three hours until relief is obtained.

Warts.—

℞ Salicylic acid ..... gr. xxx
Resorcin ..... gr. xxx
Elastic collodion ..... ʒiv

Paint on the wart every night for a week.

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THE NEW STATE COMMISSIONER OF HEALTH.

The recent appointment of Dr. Eugene H. Porter, of New York City, to the post of Commissioner of Health of New York State, produced some additional flurry of interest because of the fact that the new head of the Health Board is a homeopath.

As we pointed out, in our editorial in the Medical News, on the celebration of the Sesquicentennial of Hahnemann, there is at the present time very little difference between the education given the medical students in homeopathic colleges as compared with those of the regular school, the difference, indeed, being almost absolutely confined to the department of pharmaceuties. With regard to sanitary science and public hygiene, the opportunities afforded by both schools are practically the same, and in these subjects the State examination required for licensure consists of the same set of questions. There seems to be no doubt, then, that the health of the State will be quite as efficiently cared for as it has in the past, and that there shall be no necessary cause for complaint because of any difference of principles with regard to the prophylaxis of disease.

With regard to differences between schools of medicine, it seems only proper to recall what Governor Pennypacker, of Pennsylvania, said recently in vetoing the osteopath bill, which had passed both houses of the legislature and came up for his signature. He calls the bill an anomaly in our legislation because it would legalize the limitation of the use of any method of treatment for the cure of disease. The whole idea of different schools of medicine, he says, is unscientific, and everyone engaged in the treatment of the sick should seek the truth wherever it may be found and utilize it. This opinion represents the ideas of all thinking men at the present moment, and there is no room left now for differences of opinion that may keep those who are suffering from any form of treatment which could possibly be of benefit to them. The sooner there is a universal consensus of opinion that any form of treatment which promises to do good will be welcomed by all practitioners of medicine, without regard to the method of their education, the sooner will real progress in the cure of disease become effective.

The efficiency of a State Commission of Health is indeed very largely a personal matter, and depends on how seriously the occupant of the position takes his duties. There are opportunities in the present condition of public health in New York State for excellent work that shall prove of great importance in lessening suffering and reducing mortality outside of the large cities. Typhoid fever has well been said to be a rural rather than an urban disease, and there is room for improvement in the health conditions of the rural communities of New York State with regard to this affection. It must not be forgotten, too, that any improvement in mortality in this matter will also be reflected in the death-rate from typhoid fever in the cities. For with all possible care, the water supply of the crowded centers of population is almost sure to become contaminated to some extent, if typhoid fever is allowed to rage improperly cared for in rural communities.

Besides this has become an age of summer flitting, and at least one-half of the inhabitants of our larger towns consider it necessary to spend some weeks, and indeed in many cases some months in the country during the heated term. Not a few of the cases of typhoid fever that are reported in our large cities, especially in the fall of the year, are among persons who have returned from their vacations with the germs of this disease already in their systems. Owing to

occasional failure of recognition in these cases sufficiently early, sometimes other individuals become affected, and there is a constant element of danger from this source. It must not be forgotten that the autumn represents the most frequent incidence of typhoid fever, and that not a little of the contagion can be traced in one way or another to country districts.

We would recommend these considerations to the attention of the new Commissioner of Health and suggest that he can accomplish much both for the health of the community and for the standing of the school of medicine to which he belongs, by faithful fulfilment of duties which are not nearly so facile of accomplishment as is sometimes imagined, and cannot be done effectively by any mere routine. There is no doubt that he will receive all due cooperation from the members of the regular school of medicine in this work, and that in the high purpose of maintaining and ameliorating the health of our people, there shall be no petty jealousy, to interfere with coordination of effort.

A SUGGESTION TO THE "CONFERENCE ON HOSPITAL NEEDS."

How much of public and private means and efforts are bestowed on the hospitals of New York City, is in part revealed by the tables prepared for the information of the conference called by the New York Association for Improving the Condition of the Poor, to consider "Hospital Needs and Hospital Finances." In old New York alone (Manhattan and the Bronx) there are sixty-one hospitals of recognized standing, including twenty-nine general hospitals, fifteen hospitals for women and children, and seventeen miscellaneous special hospitals.

At the first meeting of the conference a committee was appointed to consider the means of placing existing institutions on a sounder financial footing. The financial problem is serious and is not to be underrated; and yet, when the conference shall have concluded its deliberations, the hospitals of the city very likely will go on as they have always done, seeking support each from the particular group in the community among which it has been organized, and will continue to gauge their plans by the amount of support obtained or promised.

Another opportunity, a golden opportunity for public service, lies directly in the path of the conference; namely, the opportunity to study and to exhibit to the community the wide gaps in hospital organization which mar the charitable work of the city—which leave sanitarians perplexed and a whole class of sufferers unprovided for. To study and classify these deficiencies and to show how existing needs can be met is a task which should appeal strongly to those who have organized the conference. The question to be considered is whether beds already founded should be redistributed in such manner as to take in the now neglected classes, or whether, in lieu of such redistribution, new institutions should be established. In this connection an enumeration of wholly or partially neglected classes of cases may be of interest.

It needs but a word of reminder to recall the thousands of cases of tuberculosis in all its forms and stages, cases curable and incurable, whose fate is bound up with the welfare of the community and for which adequate provision is lacking.

A second class, which is excluded under existing rules from all the private hospitals of the city, consists of patients suffering from mental diseases. The need of mental wards, as distinguished from asylums for the permanent care of the insane, has found recognition in Europe and recently in this country, in Albany. The reasons given for the establishment of the mental wards of the Albany General Hospital will, in the main, apply with equal force to New York City. These wards were established "(1) for the transient accommodation of insane patients committed to a State institution, and (2) of patients who need observation before the advisability of commitment to a State or other institution is determined; (3) for mild cases of insanity who may recover in a general hospital; (4) for victims of drug addiction; (5) as an emergency resort for rapidly developing and critical cases of delirium; and (6) for the sudden and often dangerous forms of mental disorder which occur in the course of general diseases or after the shock of surgical operations or anesthesia."

Among the prosperous dwellers in crowded hotels and apartment houses in New York City cases of contagious disease occasionally develop, and many of these cases seek in vain for suitable hospital accommodations. A patient who is able to pay for a private room and for attendance can be received at the Minturn Hospital if suffering from diphtheria or scarlatina, but a measles patient is rejected even here. Erysipelas cases also are almost universally declined.

For cases of measles the Health Department has at its disposal a mere handful of beds on North Brothers Island, and for erysipelas cases there are male and female wards at Bellevue. These limited and comparatively poor accommodations signify the absolute exclusion of the well-to-do, and necessitate the rejection and consequent neglect of a majority of the cases occurring among the poor.

Chronic and incurable cases of every description receive scant consideration at most of the hospitals, and the effort to exclude such cases is hardly to be condemned under existing conditions. More beds are needed for hopeless cases of malignant disease, and an almost uncultivated field awaits some generous founder of a home for patients with incurable nervous disorders.

Whenever medical men assemble to consider means of combating the further spread of venereal diseases, the crying need of additional hospital accommodations is emphasized. In most of the hospitals of New York these socially dangerous maladies are looked upon with dread, and in the absence of complications constituting an immediate menace to life, the treatment of such cases in ward beds is usually refused.

Add to the cases already cited the thousands of helpless "convalescents" who are thrust from the doors of hospitals to make room for acute cases, and one begins to realize the magnitude and complexity of the work which remains to be done before New York City can boast of anything approaching a comprehensive system for the care of those who are proper subjects for hospital treatment. As an initial step in the development of such a system, the conference of hospital representatives should be organized as a permanent body. It is to be hoped that such organization will be effected and that at least a portion of the energies of this representative body will be spent in the consideration of the problems just outlined.

TWENTIETH ANNUAL MEETING OF THE ASSOCIATION OF AMERICAN PHYSICIANS.

This year the twentieth annual meeting of the Association of American Physicians, held, as usual, in Washington, was as well attended and as replete with scientific interest as any of the past sessions. The discussions in the present meeting were even of more practical character than usual, as may be seen in the abstract from the proceedings published in this week's Medical News, p. 955. Subjects of special interest to the general practitioner of medicine were almost constantly on the tapis, and not so much time as usual was given to pathological discussions or to the presentation of rare cases that are interesting curiosities, but whose study can be, after all, of but little help to the physician busy with the routine of ordinary practice.

The increase in the number of members who may now be admitted to the Association, which was accomplished last year, and the creation this year of a class of associate members limited to 25 in number, but with all the ordinary privileges of active members, will probably serve still further to add to the interest of the proceedings in the future, since younger workers are to be thus given the opportunity to bring their researches before the Association. There has, however, always been a noteworthy readiness on the part of the Association of American Physicians to encourage the young men in their investigations, and nothing ever evokes so much applause as a difficult technical study well elaborated and rendered clearer by one of the juniors.

The distinctive features of the present meeting were undoubtedly the discussions on gonorrheal septicemia and endocarditis, on the occurrence of fever associated with chronic endocarditis, and on the retention of the chlorides in cases of chronic parenchymatous nephritis. As the result of the investigations made at Johns Hopkins there can no longer be any doubt that gonorrhea may be the active cause of the most serious general symptoms without the presence of any notable local lesions. Most of these cases have been mistaken for other and usually much more benign affections. In one case, described by Dr. Thayer, there was apparently a complete clinical picture of typhoid fever. As Dr. Osler said, the temperature chart appeared absolutely typical of typhoid. Even spots simulating the rose spots of typhoid fever had been noted. On the twenty-first day, however, when the diagnosis of typhoid was about reached, the gonococci in pure culture were found in the blood. We are tempted to wonder how many of the cases of so-called typhoid fever without Widal reaction, but with a clinical history that is supposed to make them unmistakable, are really examples of gonorrheal septicemia masquerading under the guise of typhoid fever. The fact that Dr. Thayer's case recovered completely after seven weeks only makes this possibility more proximate.

With regard to fever associated with chronic endocarditis there can be no reasonable doubt, after the discussion, that it may occur without any other cause than the process on the heart valves. The vegetative form of chronic endocarditis seems to be most often thus complicated by fever, but the valve lesions are by no means necessarily of large size. Some of them indeed are rather inconspicuous. This low grade fever bears no relation to malignant or ulcerative endocarditis and is not complicated by thrombi and other active manifestations. The cases last many months as a rule and are often fatal, though this is not an absolute rule.

The whole subject of the place of common salt in the human economy was brought up in the discussion of its relation to the edema of nephritis. In parenchymatous nephritis the abstraction of salt from the diet in many cases brings about an immediate reduction in the patient's weight, which reduction is due to the disappearance of the water from edematous tissues. The whole process is as follows: Degenerate kidneys fail to eliminate salt which accumulates in the tissues. After a time this attracts and retains water. When salt is not allowed in the food some of the salt previously deposited in the tissues is reabsorbed into the active circulation and it carries with it the water of edema. There seems no doubt that a distinct step in the therapeutics of nephritis has thus been made, though it is clear that much still remains to be learned as to the place and disposal of salt in the economy. The curious observation that a kidney that is only slightly permeable to common salt may yet retain its normal permeability to such substances as methylene blue and the phosphates of nervous metabolism shows how specific are kidney reactions, and how complex is the problem of the physiology of these important organs. These discussions deserve to be read carefully by all those who are interested in these very practical questions and the hints at their solution which are thus afforded.

ECHOES AND NEWS.

NEW YORK.

Hospital Appointments.—The following is the list from the College of Physicians and Surgeons for the past two weeks: *Westchester County*, first, H. A. Keune. *Bayonne City*, L. Cohen. *Christ's* (Jersey City), S. W. Dodd, H. A. Bonynge. *St. Mark's*, T. L. Hein, J. A. Keller. *Elizabeth General* (N. J.), J. H. Childs. *St. Joseph's* (Phila.), A. H. Harrigan. *Swedish* (Brooklyn), first, H. F. Bruning. *Norwegian* (Brooklyn), first, H. G. Baumgard, J. B. Latta. *Orange Memorial* (N. J.), C. L. Allers.

New Home for Crippled Children.—A large mansion, surrounded by spacious grounds, three miles from the town of Hudson, has been donated by Mr. and Mrs. Charles Thorley, of 647 Madison Avenue, to the Free Industrial School for Crippled Children. It was bought from the Alonzo Black estate. The place is to be called the Lulu Thorley Lyons Home for Crippled and Delicate Children, the name being in memory of Mrs. Wallace Foster Lyons. The school and home are to be absolutely non-sectarian. The regular public course of study will be given in kindergarten, primary and grammar classes. Manual training will be a special feature. The donor wishes that the institution educate the children to be self-supporting. Many of the older children will receive a certain sum of money for the work they do.

Women Get Their M.D.'s.—The New York Medical College and Hospital for Women had its commencement last week in the ballroom of the Waldorf-Astoria Hotel. Nine graduates received diplomas, and the following prizes were awarded: Faculty prizes for general excellence, Mrs. Jean M. Williams, of New York, first, $50; Miss Bertha F. Johnson, second, $25; Miss Grace Kahrs, of the sophomore class, for the highest freshman average, $125; Miss Eleanor Van Buskirk, prize for the best two years' work in anatomy; Miss Ethel Delinsky, Dr. Wilcox's prize; Miss Van de Mar, Dr. Boynton's prize in ophthalmology. Addresses were made by Dr. M. Belle Brown, dean of the faculty; Dr. Jenny de la M. Lozier, and the Rev. Phoebe A. Hanaford. There was music incidental to the proceedings by the Rubinstein Club, of which William R. Chapman is the director.

Care of Destitute Children.—The State Board of Charities on May 10 sent to 1,200 superintendents and overseers of the poor throughout the State copies of the new law passed by the last legislature to prevent evils and abuses in connection with the placing out of destitute children, together with the new blanks to be used by poor officials in making reports. Under the statute such reports must be sent to the department every month. The old law required only annual reports. The principal changes in the questions which superintendents and overseers must answer have to do with the religion of the child's parents, and of the family with which the child is placed, and are designed to insure the enforcement of the following section in the law: In every case where practicable any child placed out shall be placed with individuals of like religious faith as the parents of the child.

Graduation Exercises at Homeopathic.—The forty-first annual commencement exercises of the New York Homeopathic Medical College and Hospital were held May 9 in Mendelssohn Hall. Twenty-one students were graduated and received hospital appointments. The vicar of Trinity Church, the Rev. J. N. Steele, delivered the graduating address. The prizes for general excellence in study were won by Harry Clinton Sayre, of Warwick, N. Y., and David Clark Strachan, of East Orange, N. J., while the Fiske Prize for the highest standing in the studies of all classes was won by Ralston R. Reed, of the junior class. Addresses on subjects of interest and instruction to the graduates were delivered at the Flower Hospital earlier in the day by Dr. Charles Francis Adams and Dr. St. Clair Smith. A demonstration in surgery was given by Dr. Nathaniel Robinson, class of '85.

Class Reunion.—The Class of 1895 of Medical Department of New York University held a class reunion and banquet at Hotel St. Regis, May 9, to celebrate the

tenth anniversary of graduation. Fifty-six of the ninety-seven members of the class were present. Dr. Eben Foskett presided, and speeches were made by Prof. John F. Brady, of Yonkers, N. Y.; Dr. Wm. J. Nary, John F. Coums, of New York; H. L. Buled, of Camden, N. Y.; Carl V. Reynolds, of Asheville, N. C.; T. B. R. Smith, of Jeanette, Pa., A. P. Bergman, of New Haven; T. J. Kilmartin, of Waterbury, Conn.; F. C. Adams, of Bridgeport; E. T. Thorpe, of Derby, Conn., and others. Although reunions of medical college classes are unusual, this was a great success, as an unusual spirit of friendship has always been present among the members of this class. It is worthy of note that 95 of the 97 surviving members of the class are engaged in medical work. Four members of the class have passed away, two of them of tuberculosis.

Polyclinic Needs Funds.—The *Times* supports the Polyclinic in its appeal for funds in an editorial, which says: We published some time ago a communication from Dr. John A. Wyeth with reference to the kind of work, and its value, done at the Polyclinic Medical School. That institution is now in need of a new building, and appeals to the wealthy men of New York to aid it. We think the appeal is worthy of most careful consideration, and that an examination of the purpose and methods of the school will strongly justify it. The essential aim of the school is the practical teaching of the art of preventing and healing disease not merely through theoretic instruction, but, in addition, through the actual observation of cases in hospital and dispensary practice. It is the aim that has been pursued with such intelligence and success at Johns Hopkins in the system of which Dr. Osler is the eminent advocate, and of which he is to undertake the establishment in the University of Oxford. In our city, though there is provision for excellent medical instruction, his system is not adopted in a degree at all proportioned to the needs of the community. Dr. Wyeth and his associates have been working nearly a quarter of a century with singular devotion and unselfishness to extend the system. It is certainly a sound one, and we commend to it candid and friendly study by the philanthropic.

St. Mark's Hospital.—In a report just issued by the board of managers of St. Mark's Hospital, at 177-179 Second Avenue, it is pointed out that the institution is one which "has never refused admission even to hopeless cases." Comparing the work of St. Mark's with that of other hospitals, the report continues: In looking over the latest published reports of hospitals in Manhattan and Bronx it is seen that the salaries amount in some cases to 33 per cent., and even over 40 per cent., of the total expenditures, and the cost of maintenance of a ward patient is as high as $2.48 per day, and of a private room patient as high as $5.49. The daily cost of a patient in St. Mark's Hospital, taking into account all current expenses, is $1.80, whereas the average daily receipts from a patient are less than eighty-five cents. The most notable improvements during the last year were the establishment of a private obstetrical free ward, the registration of the St. Mark's Hospital Training School for Nurses by the regents of the University of New York, and the establishment of a night service in the out-door department to enable those sick poor who cannot leave their home or work in daytime to obtain medical aid and treatment. One of the charitable features of the hospital is the rule to give a free meal to any poor person applying at the door, and 3,814 meals were supplied in this way during the last year. In the same time 4,109 patients were treated.

Health of the Port.—The Consulting Board of the Health Officer of the Port of New York, consisting of Drs. J. D. Bryant, E. G. Janeway, H. M. Briggs, G. L. Peabody, F. P. Kinnicutt, J. H. Girdner, J. W. McLane, R. H. Derby, Wm. M. Polk, J. W. Brannan and T. M. Prudden, visited the Quarantine on Saturday, May 13, making a careful inspection of the Station, hospitals and laboratory. The Board passed a formal resolution of approval of the high standard of efficiency which is maintained by Dr. Doty in the administration of this important agency in the protection of the public health. The Consulting Board believes that the administration of Dr. Doty is especially noteworthy and admirable in the following features: In the practical recognition of the fact that it is in the infected man and his immediate surroundings that danger lies, and not in the ship or its cargo or its healthy passengers: in the systematic use of the clinical thermometer for the detection of early and obscure phases of infection; in the application of scientific sanitary measures adapted to each special form of infectious disease; in liberal and humane efforts to ameliorate the hardships of necessary quarantine detention; and, finally, in the unwearied efforts, through laboratory research and experiment, to add to the knowledge of useful, practical sanitation. The members of the Board who for many years have been conversant with the conduct of the New York Quarantine, expressed their cordial appreciation of the effective way in which each advance in the science and practice of modern sanitation has been at once applied to the complex problems of this great port, so that year by year, through new measures which Dr. Doty has himself devised and tested, or has made available from other sources, the country is more effectively protected against the entrance of communicable and other infectious disease, while at the same time there is a steady reduction of the annoyances to individuals and damage to commerce in which earlier quarantine systems were constantly involved.

Funds at Roosevelt Inadequate.—According to the thirty-third annual report of Roosevelt Hospital, the phenomenal growth of the surgical department, with other causes of increasing expenditure, compelled the hospital board early in the year to close a ward of twenty-eight beds, in the effort to bring the expenditures of the year within the income. The report reads: The result has been that heroic efforts have been made to afford relief with the restricted capacity, and the close of the year would have shown a deficit of $8,893.19, if it had not been for the fact that three generous friends contributed the amount required to wipe out the deficit. If to that sum were added the amount of $33,964.48, already alluded to as expended by a member of your board in necessary betterment, the deficit would have aggregated $42,857.67. In the light of these figures, may not attention again be called to the need of increased endowment in the sum of $500,000, which is really the minimum sum required to produce a revenue which will be sufficient to maintain the hospital in its present line of work? The sum expended for current support of the hospital, $179,573.56, was $11,172.11 less than that of the previous year. The decreased cost per capita for food as compared with the previous year was 1 1-6 cents, the expense of food for each inmate having been 35 1-3 cents, as against 36½ cents the previous year. These figures represent the cost of food supplies before preparation. The number of patients treated in the wards without cost to the individual during 1904 was 3,093, as against 2,807 the previous year. The number of ward patients was 3,875, as against 3,457. As only 782 paid for any part of their board, the percentage of entirely free patients was 79 4-5. The total number of patients under treatment, 4,236, was 380 larger than the year before. So crowded has the hospital been that it was obliged during the year to turn

away 1,474 persons who applied for admission. In regard to recent betterments, the report says: The necessity for economy, in which your board had set an example, early in the year, by closing a ward of twenty-eight beds, would have made many much-desired improvements impossible of realization had it not been for the assistance to that end given by a member of your board who enlisted the helpfulness of esteemed friends to the degree that secured for the hospital betterments involving an outlay which aggregated $33,964.48, and among which were the following: The construction of a new laundry and its equipment with electrically operated machinery; the establishment of a new storeroom; the substitution of electric power for steam in the operation of two elevators, and enclosing the westerly half of the hospital block with a brick wall. The hospital affords exceptional advantages for the education of nurses, and offers opportunities for a thorough and varied practical experience in the medical, surgical, gynecological and children's wards; also in the general and gynecological operating rooms, the emergency department, a three months' course in obstetrical nursing at the Sloane Maternity Hospital, and a course in dietetics and massage. Class recitations and practical demonstrations are given throughout the year. In addition, there is a regular course of lectures by the visiting physicians and surgeons. The full course of instruction covers a period of three years.

PHILADELPHIA.

Florence Nightingale Receives Congratulations.—The nurses of the Jefferson Hospital Training School sent their greetings to Florence Nightingale on her eighty-fifth birthday.

Aid for the Presbyterian Hospital.—The Devon Home of the Presbyterian Hospital, at Devon, held a strawberry festival last Saturday afternoon, the proceeds of which will go to the hospital named.

Smallpox Attacks Prisoners.—This disease made its appearance among the prisoners of Blair County jail, which contains some sixty inmates. The State Board of Health has quarantined the place, and has ordered that no prisoners be admitted until the disease is conquered.

Hospital Reports.—In the Kensington Hospital for Women 70 patients were treated while in the dispensary; 286 were treated during the month of April. The Mt. Sinai, during the same period, treated 3,306. Of this number 1,100 were surgical cases, 702 were eye cases, 395 were medical and 278 were children.

Typhoid on the Decrease.—Last week 155 new cases were reported in contrast to 256 of the preceding week. The Twenty-first and Twenty-second wards, which receive filtered water, are credited with seven cases only; the five wards supplied with water pumped directly from the Delaware River reported 92 out of the 155 cases.

The Harrisburg Catastrophe Taxes Hospital.—The injured and the dying victims of the wreck taken to the Harrisburg Hospital so filled that institution that patients were forced to occupy chairs and benches in order to make room for those seriously injured. Physicians and the nurses were kept busy, and toward noon of the day following the accident, they had used the supplies in the hospital, making it necessary to call upon the citizens to come to the assistance of the hospital with supplies.

Philadelphia County Medical Society.—At a regular meeting of this society, which was held May 10, Dr. M. H. Fussell read a paper and presented specimens of "Two Cases of Malignant Endocarditis." This paper was discussed by Dr. Gwyn. The next paper was read by Dr. Norman B. Gwyn upon "Typhoid Fever, Accidental Infection with the Bacillus of Malignant Edema or the Gas Bacillus; Death with Symptoms of Intrathoracic Irritation." Dr. G. B. Massey read the last paper, "The Present Aspect of the Cancer Problem."

Philadelphia Pathological Society.—At a regular meeting of this society, which was held May 11, Dr. W. E. Robertson read a paper entitled, "Sarcoma of the Lung." Dr. W. T. Longcope read a paper on "Thoracic Infection in Tuberculosis." Drs. L. Pearson and S. H. Gilliland presented a paper on "Additional Experiments upon the Immunization of Cattle Against Tuberculosis. Dr. R. C. Rosenberger read of "A Study of the Mesenteric Glands, especially in Relation to Tuberculosis." The last paper was presented by Dr. H. R. Alberger on "Anthracosis of the Liver in Pulmonary Tuberculosis."

Lived Four Days Without Water.—After completing their task of loading a car of cabbage, six negroes of Charleston, W. Va., laid down in the car and fell asleep, and while asleep the car was locked and started on its journey north. When they awoke they found themselves prisoners and regarded the affair as a joke, but as the train continued without stopping, and after they found themselves without any food or drink the matter became serious. As the door of the car opened in Philadelphia, the six men were found stretched on the floor nearly dead. After water was supplied they soon recovered. Each sufferer had given up all hope of recovery.

The Establishment of an Infant Asylum Proposed.—In her annual report, Mrs. Belle S. Cohen, president of the Jewish Maternity Association, advocated the founding of an institution to care for infants in connection with the Maternity Hospital. During the last year 263 patients were cared for in the wards; 150 children were born in the hospital, this number includes 6 pairs of twins, 30 of the children were placed in the Nursery for Motherless Infants. In the dispensary 1,087 cases were treated. According to the treasurer's report the receips were $7,491.57, of this amount $6,000 was received from the Federation of Jewish Charities; the expenditures were $9,751.65, leaving a deficit of $2,260.08. At the same meeting officers were elected.

Appropriations Cut and Bill Vetoed.—In signing the appropriation bills passed by the legislature during the last session, the Governor reduced the total amount appropriated $866,120. He vetoed the act creating a Department of State Charitable Institutions which provides for a commissioner with a salary of $10,000, and a number of assistants. In giving his reasons for the veto he said that the purpose of the bill and the system elaborated in it would in all probability be of benefit to the Commonwealth, and would enable the Governor and the General Assembly to secure important information concerning the institutions which the State supports or to which it makes appropriations, but there is no provision in the bill for intrusting the work to the Board of Public Charities or for the repeal of the act creating the board, consequently conflicting reports would be received from the Board of Public Charities and from the Commissioner of the Department of State Charitable Institutions.

Tropical Diseases.—On Thursday, May 11, the students of Jefferson Medical College listened to a lecture delivered by Dr. F. M. Sandwith, formerly of Cairo, Egypt, but now professor of medicine in the School of Tropical Medicine, London, on the *Distoma hematobium* (*Bilharzia*) He informed the students that this disease of Egypt, South Africa, and occasionally of Asia. The male is about 1 cm. in length while the female

is longer and thinner, and many inhabit the gynecophoric canal of the male. He differentiated the distoma of Egypt from the one found in Asia by the fact that the male of the former is covered with tubercles while the Asiatic male hematobium has no tubercles. The female is not capable of locomotion. The eggs of the parasite are like a melon seed, each having a spike either at the end or upon its lateral surface. These spikes are a means by which the eggs wander from place to place, and they are also a source of irritation, which causes the bladder, where they are frequently found, to contract, and this procedure often forces the eggs into the soft structures of the bladder wall. In speaking of the portal of entry he mentioned the mouth, but stated that the parasite was destroyed by the normal secretion of the stomach, he also mentioned the urethra and the rectum as portals of entry, but since the parasite is so often found in the neighborhood of the liver he thought this route is less frequently than inoculation through the skin. The peasants are more frequently affected than city people; in regard to the period of incubation he said little is known but may be from two to four months. The principal symptom is hematuria, and if the rectum is the seat of disease the condition similates dysentery, but pain and fever are absent. When the bladder is the part affected by mucosa is thickened, it presents polypi and sand patches, which are collections of eggs of the parasite; the ureter may become greatly dilated and thickened, hydro-or pyonephrosis may develop with atrophic changes in the kidney. When the rectum is the seat of disease there is present ulceration and excrescences of the mucosa; the submucosa is greatly thickened. The vagina may show a similar condition. The anemia is not marked; the red cells number about 4,000,000; the eosinophiles may reach 10 or even 40 per cent. The disease may be complicated by uremia incident to the cystitis and condition of the ureter and the kidney.

Text of Governor's Veto of Osteopathic Bill.—Your Committee on Medical Legislation, appointed at the last meeting of the Philadelphia County Medical Society, has the honor to make the following report on the work done at Harrisburg. Your committee found two medical bills before the legislature, both vitally affecting, directly and indirectly, the medical profession of our State. The first was a bill known as the Hoke Bill, which consisted of amendments to the law of 1893, and the second a bill legalizing a so-called system of medicine, termed "Osteopathy," and regulating the practice of and licensing Osteopaths. Through the united efforts of your Committee the Hoke Bill passed both Houses of the legislature by an almost unanimous vote. Notwithstanding, our efforts, the Governor vetoed the bill, on account of some technical inaccuracies. Twice was the Osteopathic Bill defeated in the House, but by strong political efforts the bill finally passed. The Senate passed it on original and final readings. This enabled the bill to be brought before the Governor for his signature or veto. Your Committee found it necessary to use every effort to prevent the measure from becoming a law. The committee had an appointment with Governor Pennypacker, April 21, to hear the discussion on the Osteopathic Bill. Beside your Committee there were present, the President of the State Medical Society, Dr. König; President of the Allegheny County Medical Society, Dr. Heckel; Dean Holland; Representatives from the Dauphin County Medical Society, from the Homeopathic Medical Societies and the Osteopaths. This discussion lasted for more than three hours. However, the committee report with great satisfaction, that his Excellency, Governor Pennypacker, vetoed the Osteopathic Bill in the following language: "I file, herewith, in the office of the Secretary of the Commonwealth, with my objections, Senate Bill No. 115, entitled 'An Act to regulate the practice of and licensing of osteopaths in the State of Pennsylvania, the establishment of a board of osteopathic examiners representing the Pennsylvania Osteopathic Association and providing for the punishment of persons violating the provisions of this act.' The purpose of this bill is to establish a State Board of osteopathic examiners, to consist of five members to be appointed by the Governor. This board is directed to issue certificates of qualification of practise osteopathy to all applicants having a diploma from a legally recognized and regularly incorporated college of osteopathy. It further provides that licenses shall be issued to all persons who have practised osteopathy in the State for four years prior to July 1, 1905, and to such persons as now legally hold a diploma from a reputable and legally conducted college of osteopathy. It further provides that the applicants after July 1, 1905, shall have attended for at least three separate years such a college of osteopathy, and shall be examined by the board in certain designated branches, and that those who apply after July 1, 1907, shall in like manner have studied for four separate years and submit to such examination.

"Section 7 provides that 'any person who shall practise or attempt to practise osteopathy in treating diseases . . . without having first obtained the license herein provided for . . . shall be deemed guilty of a misdemeanor, and upon conviction thereof shall he punished by a fine of not more than one hundred dollars or by imprisonment in the county jail for a period of not more than ninety days for each offense.'

"There is nothing in the bill to indicate what constitutes the science of osteopathy. An effort to solve the query by an examination of the printed literature of the science is not very successful. Dr. A. T. Still, who is the founder of the science and is still living, in his autobiography, says, 'Who discovered osteopathy? Twenty-four years ago, the 22d day of next June, at ten o'clock, I say a small light in the horizon of truth. It was put in my hand, as I understood it, by the God of nature. That light bore on its face the inscription: This is my medical library, surgery and obstetrics. This is my book with all directions, instructions, doses, sizes, and quantities to be used in all cases of sickness and birth, the beginning of man: in childhood, youth and declining days. I am something of what people call "Inspired." . . . The other classes have different names for it—clairvoyancy and clairaudient. Sometimes I was so clairvoyant that I could see my father twenty miles from home: I could see him very plainly cutting a switch for my brother Jim and I, if we hadn't done a good day's work. That is called clairvoyance. Then I could hear him say: "If you don't plow faster I will tan you twice a week." This is clairaudience.' In his Philosophy of Osteopathy, he says: 'Principles to an Osteopath means a perfect plan and specification to build in form a house, an engine, a man, a world, or anything for an object or purpose. To comprehend this engine of life of man which is so constructed with all conveniences for which it was made, it is necessary to constantly keep the plan and specification before the mind, and in the mind, to such a degree that there is no lack of knowledge of the bearings and uses of all parts.' However true this may be, it is too indefinite to give the ordinary layman any very accurate description of the science. Since the bill refers to other schools for the practice of medicine, it is probably a school and it appears from section five that the holders of certificates are not to prescribe or use drugs or operative surgery. The main re-

liance would appear to be upon the manipulation of muscles and nerves, but this conclusion is entirely an inference and may be incorrect. It must be assumed, however, that there is some scientific truth which those interested in osteopathy have discovered, and that it is utilized in the treatment of diseases. The study of medicine and surgery has been conducted for ages, and we have much legislation which is applicable to its conduct. Under the Act of May 18, 1893, a Medical Council was established which issues licenses after examinations authorizing the applicants to practise medicine and surgery. If then osteopathy represents some truth in the treatment of disease, the knowledge and use of which would be beneficial to the diseased and the injured, with what consistency can these practitioners be prevented from making such use of it? Why should their patients be deprived of such benefit as may result from the discovery? If, however, this bill should become a law, the physician who would practise or attempt to practise what the osteopaths have discovered would be punishable by imprisonment for ninety days. This would be possibly a great loss to the community and certainly a great wrong to the physicians. The whole thought of the establishment of schools of medicine is unscientific. All of those engaged in such pursuit ought to be seeking to ascertain the truth and to accept it wherever it may be found. The approval of this bill would appear to give the authority of the State to a system of practice in the healing art which excludes the use of medicine and the use of surgery. Why should there be an attempt to so confine the operations of the mind? If both drugs and surgery are useless they may be rejected, but if they should at times be found to be beneficial why should any science for the enforcement of a theory make the effort to exclude their use?

"Should the bill become a law licenses would be issued by the State Board of Osteopathic Examiners and not by the Medical Council of Pennsylvania, which would be an anomaly in our legislation upon the subject.

"For these reasons the bill is not approved."

CHICAGO.

Antitoxin Bill Passed.—To provide each County of the State with a supply of antitoxin, distributed through an agent appointed by the State Board of Health was the object of the House Bill which passed in the Senate a day or two ago. The bill previously had passed the House.

Cerebrospinal Fever.—During the month 27 deaths reported as caused by cerebrospinal fever were investigated by the Department experts. Only four of these were verified as contagious meningitis, and two of these were ill upon their arrival in this city, having contracted the disease elsewhere—one in New York State and one on shipboard.

Osteopath Bill Defeated.—The Committee on Judiciary of the House of Representatives, Illinois, gave a hearing on Senate Bill No. 311 May 4. Drs. Wm. A Evans, Robert B. Preble, Geo. W. Webster, Wm. K Newcomb, C. B. Johnson, M. G. Reynolds, and James V Egan spoke for the defeat of the bill. The committee ordered that the bill be sent out with the recommendation that it be not passed, and on the following day the bill was tabled in the House of Representatives.

Memorial Institute for Infectious Diseases to Manufacture Sera.—This institute has established a serum division as a branch of its scientific and experimental work. It will undertake the preparation of various curative and protective sera, and will also prosecute investigation into some of the problems of immunity and opsonotherapy. It is also thought that a limited amount of diphtheria antitoxin will be available for distribution at cost. Preparations for the new work are now under way, and Professor E. O. Jordan, of the University of Chicago, has been placed in charge of the serum division.

Tuberculosis Bill.—Illinois will adopt the scientific treatment of tuberculosis advocated by her most prominent physicians. It is said that Governor Deneen will sign the bill finally agreed upon between the House and Senate, and which has been passed. The appropriation for a tuberculosis sanitarium originally provided for in the bill was $50,000, but after passing the House the bill encountered opposition in the Senate. Finally, after the Governor had shown active interest in the bill, it was amended to reduce the appropriation to $25,000, and it passed the Senate. The House concurred in this amendment by a vote of 112 to 0.

GENERAL.

Fighting Plague and Cholera.—The Reichstag reassembled May 10, after the Easter recess, and passed the first and second readings of the bill approving the international sanitary agreement, signed in Paris, December 3, 1903, for fighting the plague and cholera. The United States is also a signatory to this agreement.

The World's Largest Hospital.—Under the above caption *The Globe* prints an interesting editorial: "The consumption sanitarium which is to be established near Las Vegas, New Mexico, through the joint generosity of the Santa Fé Railroad and the fraternal organizations, will represent the most ambitious attempt yet made to stay 'the white plague.' The undertaking is of national importance. A mere outline of the plan carries hope to thousands and is a welcome assurance against future misery."

Study Tuberculosis Among Negroes.—Plans to reduce the very high death rate from tuberculosis among the negroes was recently discussed at a conference held in the United Charities Building. The conditions of city life which bring about the abnormally high death rate among these people were discussed. Dr. Andrew H Smith, former president of the Academy of Medicine, presided at the conference, and Dr. Hermann M. Biggs, chief medical officer of the Department of Health, made the principal address.

A Fire at Brown University.—Zoological and anatomical specimens of considerable value were destroyed by a fire which started in the exhibition section of Rhode Island Hall at Brown University, early May 12. The flames were extinguished in time to prevent extensive damage to the building, and students carried out many valuable instruments and other property. Some of the specimens destroyed cannot be replaced. The fire is thought to have started from a sterilizer, heated by gas, in the basement. The loss to the building itself will not exceed $1,000.

The Panama Situation.—The dreaded appearance of yellow fever on the Isthmus of Panama is regarded in official quarters as likely to hinder progress during the summer on canal work. A telegram received at the War Department from Governor Davis, at Panama, stated that Robert R. West, Deputy Auditor for the Canal Commission; N. M. Barrett, and Charles Leach of the Engineer Department, were down with the fever and in the hospital. The inefficiency of the plans and work done by the former commission in pushing sanitation of the canal zone is becoming daily more apparent. Secretary Taft and the new commission are making every effort to provide against epidemic conditions and to secure protection for the thousands of men who soon will be employed. The new patients are of a class of employees

regarded as intelligent and competent to observe all rules of hygiene and to follow closely the well-established methods of protection against the fever. Recent reports from the Isthmus show that conditions are abnormal, owing to almost a water famine and to bad weather. It is believed that the conditions will improve steadily, and that the American colony is going through its worst experience. Within a few weeks the new water supply system, bringing pure mountain water into Panama, will be in operation. When the city is paved with vitrified brick and sewered it will be the cleanest city in the tropics. This is a consummation devoutly to be wished.

State Board Statistics.—In the issue of last week the Journal of the *American Medical Association* published a very complete and interesting table of the results of examinations held by various medical examining boards throughout the United States. The New York has been worked out from the table:

There are ten colleges represented by graduates between the years 1900 to 1904 inclusive; all of whom took the 1904 tests. The Albany Medical presented 46 men, 4.3 per cent of whom failed; the College of Physicians and Surgeons 221, 3.2 per cent. of whom failed; Cornell 67, with 1.5 per cent.; the Eclectic 9, with no failures; Long Island College 48, with 2.1 per cent.; N. Y. Homeopathic 28, with 3.6 per cent.; N. Y. Medical College and Hospital for Women 9, with no failures; University and Bellevue 58, with 1.7 per cent; Syracuse 34, with no failures; and the University of Buffalo 41, with 6.8 per cent. of failures. Six of the ten colleges are in New York, viz.: Physicians and Surgeons, Eclectic, New York Homeopathic, New York Medical for Women, and Bellevue. Of these the Eclectic, Women's College tie for first place, Cornell is second, Bellevue third, Physicians and Surgeons fourth, and the New York Homeopathic last. Of all the institutions the Eclectic, Women's and Syracuse are first in the matter of having no failures, while the University of Buffalo shows the highest percentage of rejected applicants. The *Journal* ventures the hope that a comparison of the records in different States may do something toward bringing about the much-to-be-desired reciprocity in the requirement for State license.

Boston Society.—A clinical meeting was held in the Treadwell Library at the Massachusetts General Hospital, Friday, May 12. Dr. James J. Mumford presided. Dr. R. C. Cabot gave a preliminary report on some "Studies of Abdominal Tumors" in the Massachusetts General Hospital from 1870 to the present time. He had at present 4,141 cases. These he had carefully arranged and classified, omiting only tumors formed by appendicitis and hernia. In many cases the results were surprising and the evidence to be finally collected will doubtless be of a very valuable character.

Dr. J. T. Bowen demonstrated one case of elephantiasis of the entire left leg, due to lupus vulgaris, and another case of ringworm of the large-spored variety on a cattle-herder from Vermont. He spoke of the etiology and clinical varieties of this condition as it occurs in cattle.

Dr. W. C. Quimby spoke on "End Results in Patella Fractures." Letters had been sent to 50 cases, 30 of which had shown up at the hospital. In the 6 cases, unsutured, a perfect or fair result, at least with a serviceable knee was found in 66.5 per cent; in 26 sutured cases a good result was obtained in 84.5 per cent. In one case, a refracture, with a present separation of several centimeters, the patient held the world's record for three successive broad jumps, 41 feet 5 inches. As regards suture material, the best results seem to have been obtained from silk-worm gut, and the least desirable from silver wire.

Dr. W. W. Zannett demonstrated a case of Charcot joint of the right ankle and a beginning softening of the left. The X-ray photographs were especially interesting.

Dr. C. W. Townsend and Dr. Oscar Richardson reported an unusual case of acute tuberculosis in an infant. A healthy child, good family history, had a continuous fever, 103° to 106° F., for five weeks with absolutely nothing in the physical examination of the most minute description to account for it except a serious discharge from one ear which soon stopped. At autopsy the abdominal cavity was practically obliterated with a caseous mass surrounding intestines and peritoneum, in places one-half inch thick of a tuberculous character. The source of infection is still a mystery.

Indecent Advertising.—The Massachusetts Senate last week by a vote of 17 to 14, passed to be engrossed the bill to prohibit indecent publications, including advertisements, adopting Senator Cummings' amendment, whereby the following bill was substituted for the original measure reported by the judiciary committee: Whoever publishes, delivers, distributes, or causes to be distributed, an advertisement or notice describing the symptoms or details of a venereal disease or of a disease, infirmity or condition of the sexual organs, or an advertisement or notice calling attention to a person, or persons, office, or place, where such diseases, infirmities or conditions may be treated, or where advice relating thereto is or may be given, shall be punished by imprisonment for not more than six months or by fine of not less than $50 nor more than $500 or by both such fine and imprisonment; provided, however, that this statute shall not be construed to apply to didactic or scientific treatises upon the diseases, infirmities or conditions hereinbefore mentioned, which treatises do not advertise or call attention to a person or persons, office or place where such diseases or conditions are or may be treated or where advice is or may be given relating thereto; and, provided, further, that the prohibitions of the statute shall not be deemed to apply to labels securely attached and adhering to bottles or packages of medicine, nor to the printing and delivering in sealed packages outside of this commonwealth of books, pamphlets or circulars containing such advertisements. Senator Craig, of Essex, first moved an amendment to provide that whoever shall advertise to treat or cure venereal diseases, or any owner or manager of a publication in which such advertisement shall be printed, shall be liable to a fine of $500, or imprisonment of from one to six months.

Senator Cummings, of Norfolk, opposed the adoption of this amendment, claiming that it killed the intent of the bill reported by the judiciary committee, which was more drastic.

Senator Clark, of Middlesex, favoring the original bill, exhibited several circulars and advertising pamphlets of the class the legislation was intended to prohibit.

Senator Craig opposed the original bill. He contended that medical and scientific journals and agricultural reports would be completely blacklisted by such a measure. There is law enough on the statute books at the present time, he said. "The federal statutes cover this matter quite fully," said Senator Craig. "If it is passed, it will make the State law on the subject ridiculous."

The Craig amendment was rejected, and the Cummings amendment adopted. Senator Lane, of Boston, then moved to refer the matter to the next General Court. Reference was refused, 17 to 14, and the bill was then passed to be engrossed by a similar vote.

American Gynecological Society.—The thirtieth annual meeting of this society will be held at Niagara

Falls, May 25, 26 and 27, 1905. Herewith follows the interesting program: "Accidental Rupture of the Uterus," by Dr. George W. Jarman, of New York; "Rertoversio Uteri—A New Operation for Radical Cure," by Dr. Arthur W. Johnstone, of Cincinnati; "A New Plan of Procedure in Retro-Uterine Displacements," by Dr. E. E. Montgomery, of Philadelphia; "Arteriosclerosis of the Uterus as a Factor in Uterine Hemorrhage," by Dr. Palmer Findley, of Chicago; "Post-Operative Vomiting," by Dr. Eugene Boise, of Grand Rapids;; "Uniformity in Pelvic and Cranial Measurements." Report of Committee, Drs. King, Williams and Davis; Symposium: "The Relation of the Appendix to Pelvic Disease or to Pregnancy;" (*a*) Relation to Pelvic Disease, by Dr. Reuben Peterson, of Ann Arbor; (*b*) Relation to Pelvic Disease, by Dr. Hunter Robb, of Cleveland; (*c*) Relation to Pregnancy, by Dr. Henry C. Coe, of New York; (*d*) Relation to Pregnancy, by Dr. A. Lapthorne Smith, of Montreal; (*e*) Relation to Pregnancy, by Dr. J. Clarence Webster, of Chicago; "Overlapping of the Fasciæ in Closure of Wounds of the Abdominal Wall," by Dr. Charles P. Noble, of Philadelphia; Symposium: "The Radical Abdominal Operation versus the Vaginal Operation for Carcinoma of the Uterus;" (*a*) The Vaginal Operation, by Dr. Carlton C. Frederick, of Buffalo; (*b*) The Vaginal Operation, by Dr. George Gellhorn, of St. Louis; (*c*) The Vaginal Operation, by Dr. Fernand Henrotin, of Chicago; "The President's Address," by Dr. Emelius C. Dudley, of Chicago: "The Mortality in Operations for Fibroid Tumors of the Uterus," by Dr. J. Montgomery Baldy, of Philadelphia; "Migratory Uterine Fibroids," by Dr. Reuben Peterson, of Ann Arbor; Symposium: "The Toxemias of Pregnancy;" (*a*) Clinical Types of Pregnancy Toxemia, by Dr. J. Clifton Edgar, of New York; (*b*) Renal Insufficiency, by Dr. Henry C. Coe, of New York; (*c*) Pernicious Vomiting of Pregnacy, by Dr. J. Whitridge, of Baltimore; (*d*) Eclampsia and Its Treatment, by Dr. Cyrus A. Kirkley, of Toledo; (*e*) The Treatment of Eclampsia, by Dr. Franklin Spilman Newell, of Boston; (*f*) Vaginal Cæsarean Section in Cases of Eclampsia, by Dr. Henry D. Fry, of Washington; "The Mortality of Operations, other than Strumectomy, in Cases of Exophthalmic Goitre, with Special Reference to Gynecological Operations," by Dr. Barton Cooke Hirst, of Philadelphia; "Sudden Death During or Immediately After the Termination of Pregnancy or Operation on the Pelvic Organs of Women," by Dr. Edward P. Davis, of Philadelphia; "The Technic of an Operation for Large Rectocele," by Dr. George H. Noble, of Atlanta; "The Surgical Treatment of Ulcer of the Stomach," by Dr. William H. Wathen, of Louisville; "The Present Status of Electricity as a Therapeutic Agent in Gynecology," by Dr. Chauncey D. Palmer, of Cincinnati; "The Third Ovary," by Dr. W. P. Manton, of Detroit; "The Repair of Injuries to the Ureter," by Dr. Florian Krug, of New York.

OBITUARY.

Dr. Frederick A. Bates, who lived at No. 45 West Thirty-fourth Street, New York, died Sunday last, after a lingering illness, in the home of his parents, at Catonsville, Md. He was thirty-six years old and is survived by a widow. Dr. Bates was the author of several books on ocular refraction. He was also a contributor to the *Ocular Journal*. He was born in Baltimore, Md., but had practised in New York for about fourteen years.

Dr. Ernst J. Lowenthal, a retired physician, died on Sunday night at the home of his son-in-law, Dr. James H. Rosenkranz, 826 Hudson Street, Hoboken, N. J., in his ninety-second year. He was born near Würzburg, Germany, and finished his medical studies there. He took part in the German and Austrian revolutionary movement in 1848 and came to America in 1850. Dr. Lowenthal was one of the founders of the Republican party and was a candidate for presidential elector on the Fremont ticket in 1855. He was a personal friend of Carl Schurz. He served as president of the Hoboken (German) Academy and for many years gave lectures in that institution. He lived half a century in Hoboken and retired from the practice of medicine twenty years ago.

Dr. Alexander W. Rogers, the oldest alumnus of the College of Physicians and Surgeons in New York, died May 14 at his home, Broadway and Lake Street, Paterson, N. J. He was born in Armagh, Ireland, December 23, 1814, and came to this country with his father, a Baptist clergyman, and settled in Pemberton, N. J. He immediately took up the study of medicine and was graduated in 1836. He was recognized as the foremost physician of Paterson. Half a century ago he ran for Mayor on the Prohibition ticket. It is estimated that he attended at the births of 5,000 children, in many cases having attended families for three generations. Dr. Rogers was a Baptist, inheriting a strong religious feeling from his father. For many years he was connected with the First and Fourth Baptist churches, Paterson. He maintained at his own expense a missionary in India. The India "Alexander W. Rogers Memorial Church" was named after him. He also built a small Baptist chapel in Paris after one of his many visits to Europe, the last of which was taken only nine months ago. Dr. Rogers was one of the original members of the Passaic County District Medical Society. He was chief of staff for many years of Paterson General Hospital. His wife died in 1893, aged seventy-nine years.

CORRESPONDENCE.

LATUREN VS. BOLTON DRUG COMPANY.

To the Editor of the Medical News:

Dear Sir: As soon as convenient after the receipt of your note of inquiry concerning the further progress of the case of "Laturen *vs.* The Bolton Drug Company," I called at the residence of the plaintiff and inquired of her whether she had recently received any information about the matter. As her knowledge on the subject seemed rather vague and indefinite, and as she evidently knew nothing beyond the mere fact that the matter had been "held up" as she expressed it, I communicated with Mr. Edmund F. Driggs, her attorney, whose office is situated at No. 16 Court Street, this Borough, asking him what had become of the case. Mr. Driggs informed me that he has, for many months, been endeavoring to obtain the order of settlement on the proposed case on appeal, and that although he has repeatedly called the attention of Mr. Justice Gaynor to the matter, his efforts have been fruitless, and that consequently no further progress in the case has been possible.

It will be remembered that the case at bar is an action for damages alleged to have been sustained by the plaintiff, Mrs. Laturen, in consequence of the alleged wrongful act of the defendant Drug Company in substituting drugs in the preparation of a physician's prescription, which the defendant Company dispensed for her, and, in consequence of which alleged wrongful act, she became sick and suffered from opium poisoning.

The case was brought on for trial before the Hon. William J. Gaynor and a jury, in the courthouse, in Kings County on Tuesday, April 19, 1904, over a year ago, and it is now about two years since the beginning of the action. It will also be remembered that the learned justice dismissed the complaint.

All the facts and circumstances connected with the alleged drug substitution, together with an account of the proceedings at the trial, were set forth by your correspondent in a previous article.[1] I am informed by Mr. Driggs that an appeal was immediately taken, the proposed case being submitted to the trial justice through his secretary on or about August 14, 1904; that after waiting three months, namely, until November 14, 1904, for the learned justice to make an order of settlement, Mr. Driggs addressed his Honor concerning the matter in the following communication:

"DEAR JUDGE GAYNOR: Will you permit me to call your attention to the matter of Laturen *vs.* The Bolton Drug Company? The proposed case on appeal with amendments (all but one of which were confessed) was given to your secretary about the 14th of August, and the special term index does not as yet show any decision. I thought it possible that the papers might have escaped your attention.

"Very respectfully,
"E. F. DRIGGS.

"November 14, 1904."

To which his Honor replied as follows:

"You must be in error about August 14. My secretary was away all of August. The case was sent to me at St. James about October 1. It will be attended to in due course.

"W. J. G.

"New City, November 16."

After a further delay of a month and a half, namely, on December 31, 1904, Mr. Driggs received by mail the following communication directing him to submit a brief, which order was at once complied with:

"Laturen *vs.* The Bolton Drug Company.
"Supreme Court of the State of New York.

"EDMUND F. DRIGGS, Esq.,
"16 Court St., Brooklyn.

"DEAR SIR: Judge Gaynor directs me to say that on the motion on the minutes for a new trial in the above case, he desires a brief from you on January 9, at the opening of the Court, on the question whether the testimony on the amount of the dose in the respect of whether it was dangerous, presents a question of fact rather than of law.

"Yours truly,
"J. P. KOHLER, Secretary.

"Brooklyn, N. Y., December 31, 1904."

On the sixth day of April, 1905, namely, four months after the receipt of the above communication, Mr. Driggs ventured again to address the learned justice on the subject as follows:

"Hon. WILLIAM J. GAYNOR,
"County Court House.

"DEAR JUDGE: Will you permit me once more to call your attention to the proposed case on appeal of Laturen *vs.* The Bolton Drug Company, presented to you for passing on *one* amendment several months ago? The reason I write is that we are very desirous of having this appeal before summer adjournment.

"Yours respectfully,
"EDMUND F. DRIGGS.

"April 6, 1905."

To which Judge Gaynor replied:

"MY DEAR MR. DRIGGS: I should have decided the case before this, but got blocked with work at the equity and motion terms which I held, one following the other, which is not usual. I do not wonder you mark the delay. I am over here at Flushing holding the Queens County Term, but will take up your case the soonest possible.

"W. J. G."

Since the receipt of this communication Mr. Driggs has heard nothing further.

As this case is one which involves a question of considerable interest to the entire medical profession, and also because of its apparent importance to the entire community, it is to be regretted that so great a delay in a final adjudication of it should obtain. The time usually consumed by Mr. Justice Gaynor in disposing of the day calendar stands out prominently in contrast to his delayed action in this case. Certainly the rights of a litigant cannot be said to receive proper consideration when rapidity of action at trial term necessitates resort to appeal which, for some unaccountable reason, cannot get beyond the trial justice.

The judicial departments of various governments, and the law's delays, have ever been made the subject of criticism by observers who have, one way or another, dealt with sociological questions affecting the government of the masses. The writer of fiction, the philosopher, the poet and the scientist, have each in their turn paid their respects to the maladministration of justice. From the expeditious, but barbaric trial by combat, to the "high Court of Chancery" of England is an interesting and instructive period in the history of our jurisprudence.

A casual glance at this history will convince the reader that Judge Gaynor's delayed action in his dealing with the proposed case on appeal of "Laturen *vs.* The Bolton Drug Company" is not entirely unprecedented in the law. The celebrated case of "Jarndyce and Jarndyce" might be cited as a controlling authority. It must be admitted, in all fairness, however, that the cases are somewhat dissimilar in that "Jarndyce and Jarndyce" never, I believe, reached that dignified legal position which would entitle it to be called a "proposed case on appeal," but its quiet slumberings in the "high Court of Chancery" mark it as competent authority worthy to be cited as bearing strongly on the case at bar. Dickens regarded it as being one of the most important cases occupying the attention of this learned tribunal which he described in the following language:

"This is the Court of Chancery," says Dickens, in "Bleak House," "which has its decaying homes and its blighted land in every shire; which has its worn-out lunatic in every madhouse, and its dead in every churchyard; which has its ruined suitor with his slipshod heels and threadbare dress, borrowing and begging through the road of every man's acquaintance; which gives to moneyed might the means abundantly of wearying out the right; which so exhausts finances, patience, courage, hope; so overthrows the brain and breaks the heart that there is not an honorable man among its practitioners who would not give—who does not often give—the warning, 'Suffer any wrong that can be done you rather than come here.'"

How far removed is the litigant of twentieth century civilization from the unjust and farcical conditions accompanying legal procedure in the days of "Jarndyce and Jarndyce" if the time consumed in obtaining the court's order of settlement in a simple case on appeal shall be more than one year from the termination of the trial of the cause? When to this suggestion is added the fact that unlimited *further* delay in the granting of such an order may depend entirely upon judicial caprice,

1 See MEDICAL NEWS, May 28, 1904, p. 1040.

the litigant may indeed hope in vain for an end to the controversy in which he has been forced to engage.

The *final* disposition of legal controversies which our courts are called upon to adjudicate, and especially those controversies dealing with questions involving underlying principles of large breadth and scope must, of necessity, be made by the courts of last resort for the reason that the average trial justice holding court in our large, crowded communities, is frequently overwhelmed with the business of the hour, with the result that questions of vast importance are sometimes overlooked, slighted, or misunderstood. The interests of justice, therefore, should prohibit unwarranted delay in the progress of the cause toward the Appellate Tribunal, and any system of procedure which tolerates such delay must become the subject of severe comment.

"There is no part of the law on which what may be called the success of the whole legal system more obviously depends, than that part which is concerned with the administration of justice, or, in the largest sense of the expression, on 'Laws of Procedure.'" "The object of this part of the law is to secure that the most expeditious and convenient remedy is accorded in the case of the actual or threatened violation of rights. The essence of a right is that the State will lend its aid in the case of need to maintain and enforce it. If the State is tardy in lending its aid, or if the conditions of accepting that aid are onerous or expensive, or if the machinery for supplying the aid is unreliable in its movements, to that extent, the rights conceded by the State are worthless and the law which affects to create and protect them is abrogated. It must, then, be the care of the State to ensure that the rights and duties which it originates are clearly ascertained; and, in case of controversy as to their existence or extent, that the persons immediately concerned may, with as little a loss as possible to themselves further than is caused by their own acts or defaults, have a ready opportunity afforded them of clearing up doubt."

Thus does the author of the foregoing lines, when dealing with the law of civil procedure, make the duties of the State to its subject perfectly clear. But, alas, what obtains in the practical application of the law to the average litigant who is not possessed of large means?

Mr. Herbert Spencer, in an essay on "The Duties of the State," makes use of the following interesting language:

"Our system of jurisprudence takes a very one-sided view of the reciprocal claims of State and subject. It is stringent enough in enforcing the claim of the State against the subject; but as to the correlative claim of the subject against the State it is comparatively careless. That it recognizes the title of the tax-payers to protection is true; but it is also true that it does this but partially. From certain infringements of rights classed as criminal, it is ready to defend every complainant; but, against others not so classed, it leaves every one to defend himself. The most trifling injury, if inflicted in a specified manner, is cognizable by the magistrate, and, redress may be obtained for nothing; but if otherwise inflicted, the injury, no matter how serious, must be passively borne, unless the sufferer has plenty of money and a sufficiency of daring."

"That men should sit as apathetically as they do under the present corrupt administration of justice is not a little remarkable. It is not as though the facts were disputed; all men are agreed upon them. The dangers of law are proverbial. The names of its officers are used as synonyms for trickery and greediness. The decisions of its courts are typical of chance. In all companies you hear but one opinion, and each person confirms it by a fresh illustration. Now you are informed of 300 pounds having been expended in the recovery of 40 shillings' worth of property; and again, of a case that was lost because an affirmation could not be received in place of an oath. The right-handed neighbor can tell you of a judge who allowed an indictment to be objected to, on the plea that the words "In the year of our Lord" were not inserted before the date, and another, to your left, narrates how a thief tried for stealing a guinea-pig was acquitted because a guinea-pig was shown to be a kind of rat, and a rat could not be property."

"At one moment the story is of a man whose rich enemy has deliberately ruined him by tempting him into litigation, and at the next it is of a child who has been kept in prison for six weeks in default of sureties for her appearance as witness against one who had assaulted her. This gentleman has been cheated out of half his property, but dared not attempt to recover it for fear of losing more; while his less prudent companion can parallel the experience of him who said that he had only twice been on the verge of ruin—once when he had lost a law-suit, and once when he had gained one."

"In Civil Cases," says Spencer, "the ruling agency cares scarcely more than of old about rectifying the wrongs of the injured; but, practically, its deputy does little else than enforce the rules of the fight, the result being less a question of equity than a question of pecuniary ability and forensic skill. Nay, so little concern for the administration of justice is shown by the ruling agency, that when, by legal conflict carried on in the presence of its deputy, the combatants have been pecuniarily bled, even to the extent of producing prostration, and when an appeal being made by one of them the decision is reversed, the beaten combatant is made to pay for the blunders of the deputy, or, of a preceding deputy; and not unfrequently the wronged man who sought protection or restitution is taken out of Court pecuniarily dead."

Again, we find Prof. Ernst Haeckel expressing his opinion regarding the comparative advancement of legal science with the present state of civilization: "While we look back with a just pride on the immense progress of the nineteenth century in knowledge of nature, and in its practical application, we find, unfortunately, a very different and far from agreeable picture when we turn to another and not less important province of modern life."

"To our great regret we must endorse the words of Alfred Wallace." "Compared with our astounding progress in physical science and its practical application, our system of government, of administrative justice, and of national education, and our entire social and moral organization, remain in a state of barbarism."

"To convince ourselves of the truth of this grave indictment we need only cast an unprejudiced glance at our public life or look into the mirror that is daily offered to us by the press, the organ of public sentiment."

"We begin our review with justice, the *fundamentum regnorum*. No one can maintain that its condition today is in harmony with our advanced knowledge of men and the world. Not a week passes in which we do not read of judicial decisions over which every thoughtful man shakes his head in despair. Many of the decisions of our higher and lower courts are simply unintelligible."

The loudest protestations of the ordinary citizen against the abuse of judicial power are feeble murmurs when compared to the thunderings of such great minds as those of Spencer and Haeckel, one speaking as he does for the reform of a corrupt system of jurisprudence which he asserts is commonly practised among his countrymen, the other lifting up his voice for liberty

and justice among the poor of the German Empire. Nevertheless, the listening ear can everywhere detect the constant murmurings of the compact majority.

Dickens' graphic picture of the English system of justice as it was administered in the high Court of Chancery is by no means exaggerated. Suits in chancery were dragged along for periods of time ranging from ten to fifty years, and even longer. Undecided cases were still pending when Dickens wrote "Bleak House," namely, in 1853, which had been in the meshes of the law since the previous century, and in which thousands of pounds sterling had been swallowed up in costs.

The law of heredity manifests itself in the lives of nations as well as in the tendencies of the individual. Diseased ramifications extend through and through our systems of government, and, like the inherited taint in the individual, are difficult to root out. The element in our judicial system which permits of the delay of procedure which has been demonstrated to exist in the case of "Laturen *vs.* The Bolton Drug Company," is a relic of the injustice of the high Court of Chancery of England, and should, in these days of advanced thought, have long since become a thing of the past.

According to Judge Gaynor's own account of the affair, the proposed case on appeal has been in his hands awaiting his order of settlement for more than seven months. Such unreasonable delay in the administration of justice may be truthfully said to result in great hardship to the litigant, and may be the means of depriving him of the right of final decision.

It must persuade him that there is something radically wrong with that branch of a system of judicial government which inflicts upon its subject a penalty for justly entering within its portals—the penalty of unwarranted delay in the final adjudication of a just claim. Moreover, as in the present instance, the case to be submitted to the Appellate Court for its consideration may be one which involves a question of vital importance to the entire community.

The dismissal of the complaint in the action at bar was a shock to the medical profession, because of the fact that the decision of the learned trial justice distinctly upheld the right of the druggist to substitute, at his will or convenience, the ingredients called for in the physician's prescription. A decision of this character handed down from one of the *lower courts* would certainly be unique, and against all public policy and sentiment, but, coming as it does from the Supreme Court of this State, the Court of highest jurisdiction, it is far-reaching and should be submitted to the Court of last resort without the hindrance of capricious delay.

Very truly yours,

William J. Cruikshank.

102 Fort Greene Place, Brooklyn, N. Y. May 9, 1905.

P. S.—Since the above communication was written, namely, on Monday, May 15, a decision, denying the motion for a new trial, was handed down by the learned trial justice, who also wrote a lengthy opinion devoted to the merits of the case. An examination of this opinion reveals the fact, that, with the exception of its verbosity, it does not differ from the opinion which his honor delivered in dismissing the complaint. It clearly maintains the authority of the druggist to alter the physician's prescription, and it holds further that, in the case at bar, the druggist—having added morphine acetate to the mixture which he dispensed for the plaintiff, when none was prescribed for her, acted in a proper manner and without negligence. This recent detailed opinion, coming, as it does, from the Supreme Court, impresses me, at present, as being of sufficient interest to the medical profession to require the possibility of further consideration, and I may, perhaps, feel the necessity of referring to it at greater length in a future communication.

W. J. C.

May 16, 1905.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twentieth Annual Meeting, held at Washington, D. C., May 16 and 17, 1905.

First Day—May 16th.

Presidential Address.—The regular business of the twentieth annual session of this association began with the reading of the Presidential Address on the occasion of his retirement, by Dr. E. L. Trudeau, of Saranac Lake, N. Y.

Scientific Character of Meetings.—Dr. Trudeau said that the characteristic feature of the meetings of the Association of American Physicians is the absence of any indulgence in personalties. The sessions are noted for their scientific medical interest in the broadest sense of the term. The Association has always been recognized as the medium between the clinician and the laboratory worker. This reputation has been maintained so well for the twenty years of its existence that now there can be no fear that the future will see any serious change in this matter. Undoubtedly the increase in the membership by twenty-five, which became part of the by-laws last year, and the creation of the class of associate members which is to be voted on at the present session will still further add to the interest with which the proceedings of the Association of the American Physicians have always been looked to by the profession of the country.

This Year's Losses.—Dr. Trudeau called attention to the death of Dr. Lyman, who had been, since the beginning, a prominent member of the Association. Two other serious losses must also be chronicled, fortunately not by death but by calls to positions of higher influence for the members concerned. Prof. Cushny, the Professor of Pharmacology, of the University of Ann Arbor, Mich., goes to London to continue his fruitful labors. Prof. William Osler, of Johns Hopkins, accepts the post of Regius Professor of Medicine of the University of Oxford, and thus creates a distinct lacuna in the membership of the Association. Dr. Osler's teaching abilities have been exerted not only in the narrow sphere of the different universities where he worked but on all the profession of the country. Even his seniors in professional work felt the influence of his suggestive habit of mind and of his investigating spirit. His is a loss that may not be too deeply deplored since it is others' gain, but will be felt for many years and cannot well be made up for.

The Fear of Cats.—Dr. S. Weir Mitchell, of Philadelphia, read a paper in which he described the dread of cats which overcomes some people, and the curious power which so many of these people have to recognize the presence of these animals even when they cannot be seen or heard. Three years ago a patient was sent to Dr. Mitchell, the main feature of whose nervous condition was intense fear of cats. She insisted that she was able constantly to tell when a cat was in the room. At first it seemed as though this claim might be exaggerated. On investigation, however, it seemed that there might be some ground as to her ability to recognize the presence of cats. Later another case came under observation and then Dr. Mitchell set about investigating the status of this mental peculiarity. It is,

of course, very different from the asthma which occurs in certain animals or the result of the odors of horses, dogs, cats, sheep and the like. In the course of his study a number of these latter cases, however, were called to his attention showing how common is this affection.

Replies to Questions.—Dr. Mitchell published in *American Medicine*, a series of questions asking information in regard to this morbid cat dread. He received 159 replies, some of them from Germany, some from Egypt, and India, and many of them from the more intelligent classes, from university professors, from army officers and the like. One-third of the replies did not refer to the condition under Dr. Mitchell's consideration. Many of them referred to cat asthma which is not often accompanied by dread or dislike of cats. Usually, this is due to the odor occasioning the asthma. Similarly there is the asthma from roses, apples, oranges and bananas, a number of examples of which have come under Dr. Mitchell's observation.

Cat-Phobia.—This is a fear that comes, instantaneously reaching its maximum at once. Asthma is a cumulative effect. The influence, however, may be extremely severe. In one case that was reported, for instance, even a condition of catalepsy developed. In another, temporary blindness was noticed. Usually the phobia passes off with the going of the cat, but leaves a sense of intense fatigue and dispiritedness. Sometimes the patients dream of cats and one of them has spoken of this not inappropriately as cat-mares. The dread is not always confined to women, nor are the men affected by it only of the timorous kind. One army officer who had hunted large cats—the lion and the tiger—very frequently without any fear, could not stand the domestic cat and would not pass one of them on the street if he could possibly help it.

Origin of the Condition.—Some attribute the origin of their dread of cats to a scare from a cat in childhood, others can find absolutely no reason. In about one-fourth of the cases it is noted as a family peculiarity. Five out of seven in one family suffered from it in a greater or less degree. In certain families it occurs among the ancestors rather frequently. Brothers and sisters frequently suffer from it in the same family. Sex seems to have no influence but women suffer from the affection worse than men. Many distinguished persons are known as having been afraid of cats. There is a tradition that Washington had an aversion to these animals, but there is no definite evidence in the matter. As to the direct cause, it seems to be in certain cases some emanation from the animal. Thirty-one persons could tell when a cat was near, though it had not been seen or heard. A certain number of these could tell if a stray uncared for cat had come into the house, though well-groomed cats from the neighborhood were less easily detected.

Odors in the Etiology.—At times the patients are not aware of any special odor, but then those who suffer from asthma frequently have no sense of the odor which occasions their affection. In some cases woolens on which the animals have lain are enough to produce the effect. Most of those who suffer from cat-phobia insist that they do not smell the animals. The sense of smell is, however, the one about whose physiology we know the least. Some people have it developed to a marvelous degree. The case of Laura Bridgeman who distinguishes persons by their odors is well known. Dr. Mitchell has had under observation a lad who could pick out the handkerchiefs of different relatives after they had come back from the wash. Some people are able to recognize the gloves of relatives in the same way. Just as there are sounds beyond the range of our hearing and waves in the ether which are not light or heat for our senses, so there may be peculiarities of the underlying basis of smell that correspond to these physical phenomena.

Other Results.—Cat-phobia may not be due to anything resembling odor however distantly. It must not be forgotten that some persons suffer from acute conjunctivitis whenever they come near a cat. Others have various skin manifestations, erythemas, etc., because of the propinquity of the cat. These manifestations are evidently not due to anything resembling odor or that might be felt in the nose. In a word, this whole subject well deserves investigation, since it enters on so many fields of science where little is known.

Intrapleural Lipoma.—Dr. Reginald Fitz, of Boston, described a case in which pneumonia was complicated by the presence of a large interpleural lipoma. He said that subpleural fat is not uncommon in obese persons. It has attracted attention for several generations. Sometimes this exists to the extent of forming lipomata. Occasionally they found their way through the chest wall and projected beneath the skin. When surgical removal was attempted in these cases a pedicle was found leading into the interior of the chest. In attempting to remove this surgeons usually made a mistake. The wound became infected and all except one of the patients perished. In the last case operated upon the tumor was not followed into the thoracic cavity and the patient recovered.

Pneumonia With Delayed Resolution.—The patient was a physician suffering from pneumonia in the left upper lobe. There was delayed resolution and an attempt was made to discover the cause. The heart sounds were very faint and pericarditis was suspected, though no increase of dulness could be found. An exploratory puncture was made in the fifth interspace close to the sternum. It proved negative. Puncture was then made in the fourth interspace two inches out from the sternum, but this also was negative. Thinking that there might be fluid in the pleural cavity, puncture was made in the eighth interspace, but this also proved negative. The patient became weaker and finally succumbed. After his death Dr. Fitz suggested the insertion of an exploring needle through the xiphoid costal angle. Through this a pint of pus flowed. The autopsy revealed the presence of a lipoma as large as a baby's head, springing from the mediastinal space. This is the first instance in which a lipoma has been reported as pushing the heart out of the way in such a fashion as to interfere with the diagnosis of the treatment of pericarditis.

Puncture in the Xiphoid Costal Angle.—A number of excellent clinicians have suggested making the puncture for pericarditis through the angle made by the sternum and the ribs close up to the bones. Baron Larry suggested the drainage of the pericardium at this point and treated a soldier successfully over a hundred years ago. It has been objected that drainage is more dangerous through here than in other parts because of the danger of infection. It is also said that the liver and the diaphragm are more liable to injury. As a matter of fact, however, there would seem to be less danger here.

Large Lipoma.—Dr. James Ewing, of New York, presented a specimen which had been found in the dissecting room. This consisted of a very large lipoma, though it occurred in a moderately fatty individual of middle age. It showed a distinct tendency to infiltrate the pericardium and ran along the vessels of the neck and aorta and the diaphragm. The left lung was compressed, but still had a certain amount of air in it and the condition had evidently never been suspected at all.

Pericardial Puncture.—Dr. Osler said that the point for puncturing the pericardium preferable to others was in the left angle of the sternocostal junction. In a series of cases studied by him in the Philadelphia Hospital post-mortem, he had found that in all cases the needle readily penetrated the pericardial sac if inserted high up. In a case of tuberculous pericarditis several tappings had been made in other parts with the result of obtaining a small amount of effusion. When the puncture was made here, however, a large amount of effusion was obtained. As the diaphragm is depressed by the pathological condition in the pericardium it is not likely to be injured. If any reasonable amount of care be observed the liver will not be injured.

Necessity for Frequent Tapping.—Dr. Osler said that in looking over the records of his fatal cases of pneumonia recently he has been struck with the frequency with which patients die during the course of pneumonia with large effusions into their pericardial sacs. It would seem then that the pericardium sacs could be tapped more frequently or even freely incised in some cases. The diagnosis of the presence of a pericardial effusion can be recognized by means of a hyperodermic needle. Some have an inordinate fear of wounding the heart. There is, however, no real danger from puncture of the ventricle near the apex. Indeed cardiocentesis is rather a stimulant and especially in certain forms of pneumonia, if it did occur, would do more good than harm. An advance in practice will evidently come along these lines so that physicians will not hesitate to use the needle more freely than has hitherto been the custom. Dr. Francis Williams, of Boston, said that X-ray examinations with the fluoroscope enabled the diagnosis of effusion of the pericardium sac to be made with more exactness than any other known method. At the same time the form of the sac could be determined in this way and the most suitable place for tapping determined upon.

Dr. W. P. Northrup, of New York, said that once in doing a tapping of the pericardium the needle used evidently penetrated the heart muscles, for it began to move with the heart beats. It proved, however, as Dr. Osler had suggested, a stimulant instead of a depressant of the heart's action.

Dr. Forchheimer, of Cincinnati, said that tapping of the pericardial sac in children had not been advisable in his experience, and he had seen at least one fatal result, that seemed to be attributable to an ill-advised tapping of the pericardium.

Dr. Northrup explained that his case was not that of a child but that of a longshoreman and he fully agrees with Dr. Forchheimer as to the advisability of not doing pericardial tapping in children as a rule.

Dr. Peabody, of New York, said that in many cases of pericarditis the exudate is thick and of fibrinous character and would not find its way through a small hypodermic needle. Undoubtedly many pneumonias are complicated by pericardial effusion, but most of them give no symptom and so it would be hard to decide in which cases tapping was needed.

The Incision of Pericardium.—Dr. Fitz said, in closing the discussion, that at times the effusion in the pericardial sac is walled off in such a way that it cannot be reached hy any ordinary tapping. In these cases if symptoms are severe and seem to indicate the presence of fluid in the pericardium, then incision should be made and drainage instituted. Relief and recovery follows in what are otherwise hopeless cases. With regard to diagnosis, not too much dependence must be placed on negative tapping. Undoubtedly tapping at the xiphoid costal angle will disclose the presence of pus in more cases than at any other point.

Rhythmic Lateral Displacement of the Heart.—Dr. Chas. Lyman Greene, of St. Paul, Minn., said that in 1902 he called attention to a hitherto unobserved sign of unilateral pleuritic exudate, consisting of a rhythmic lateral displacement of the heart, synchronous with respiration. Extended observation during the past three years confirms the original observations and shows that the sign is of value in differential diagnosis. A number of cases are quoted in support of the foregoing statement, a large number representing other conditions having failed to show rhythmic lateral displacement. It was absent in subdiaphragmatic abscess, malignant disease of the lung and pleura, and in pneumorthorax. The sign is best observed by the fluoroscope or by auscultatory percussion. The degree of effusion markedly influences the movement, trifling effusion failing to show it, massive effusion being accompanied by a minimum of rhythmic displacement. The sign is sometimes obtained by inspection, but such observation is subject to error. It is more easily recognized in right than in left-sided effusion. Deep respiration is necessary and may require the exhibition of morphine for the relief of the attendant pain. The author doubts the statement generally accepted that in certain cases of effusions the diaphragm is rendered immovable or bulges into the abdominal cavity, no such condition having been observed. He also takes issue of the statement that the extent of cardiac displacement in liquid effusion can be accurately determined without the use of the fluoroscope, auscultatory percussion in cases of displacement to the left and simple percussion having yielded outlines corresponding accurately to fluoroscope findings.

Sign of Unilateral Pleurisy.—In a résumé of the probable causes of rhythmic lateral displacement he takes the ground that in the presence of unilateral exudates of considerable quantity such movement is inevitable on the basis of purely physical causes, the anatomical structure and physiological mechanism of the thorax and its contained organs. His conclusions are: (*a*) A rhythmic lateral movement of the heart occurs in unilateral liquid pleural effusions. (*b*) Such movement is most marked in medium-sized effusions. (*c*) The heart approaches the affected side in inspiration and moves outward in expiration. (*d*) The extent of movement is variable, but often amounts to two inches. (*e*) That it may be measured by fluoroscopic examination, auscultatory percussion, or in the case of right-sided effusions by simple deep percussion of the free cardiac border, or in some instances by mere inspection of the apex beat. (*f*) Deep breathing and especially forced expiration are essential to the success of the maneuver, and, to obtain this, morphine must

sometimes be administered. (g) Marked rhythmic lateral movement has not been found in pneumonia, tuberculosis infiltrations of the lung, malignant disease of the pleura or lung, or in subdiaphragmatic abscess.

Gonorrheal Septicemia.—Dr. William S. Thayer, of Baltimore, said that gonorrheal septicemia may occur without any other complication. Continued fevers as the result of the gonococcus, some with arthritis and some without, are not at all infrequent. They resemble typhoid fever in their course, or malaria, and undoubtedly have been mistaken for these diseases in the past. Dr. Thayer reported a case in which fever continued for seven weeks, and from the blood of which pure cultures of the gonococcus were obtained, yet complete recovery took place. Altogether ten cases of endocarditis due to gonorrhea have been reported at Johns Hopkins Hospital. In six of these the blood culture was positive and in four of them these organisms were found in the blood during life.

Frequency of Gonorrheal Endocarditis.—In six years Dr. Thayer has seen five cases of ulcerative endocarditis in private practice which have all followed gonorrhea. This affection, then, is not so infrequent as has sometimes been thought. It usually runs its course with a remittent and intermittent fever and with chills, and may readily be mistaken for some other infection. In both of the cases in which gonorrheal affections of the aortic valves were found, the physical signs all pointed rather to an affection of the mitral valves. There was a presystolic mitral murmur and accentuation of the second pulmonic sound which seemed to indicate beyond all doubt that the mitral valves were involved.

Simulation of Typhoid.—In a case recently seen this similarity was so marked that it would have been impossible by any ordinary means to have differentiated the two affections. The fever continued for six weeks. It began with aches and general pains and presented a coated tongue and some spots on the skin almost resembling characteristic rose spots. On the twenty-first day, when it had been about decided that the case must be one of typhoid fever, the gonococcus was found in pure culture in the blood.

Dr. Osler said, in discussing Dr. Thayer's paper, that while the milder cases of gonorrhea septicemia resembled typhoid so much as to make the recognition almost impossible, if you examine the chart of these cases they will surely seem to be typhoid. There is, however, beside this mild form of the disease a severe acute fulminate septicemia which may carry the patient off in a few days. In a case of this kind recently under Dr. Osler's observation no endocarditis was present, and the only localized condition found was a small pocket of pus in one lobe of the prostate.

Dr. Thayer, in closing the discussion, said that in his cases there was no evidence of involvement of the joints and no local symptoms in any other part of the body.

Fever in Chronic Endocarditis.—Dr. J. S. Thatcher, of New York, analyzed the histories of over 1,000 patients suffering from chronic endocarditis at the Presbyterian Hospital in New York. In about one-half of all these cases fever was present. In one-half of the cases in which fever was present some definite reason could be found for the presence of the fever. In nearly 500 cases, however, fever was present without any definite reason except the endocarditis itself. The mortality of the afebrile was 19 per cent.; in the rheumatic febrile cases it was seven per cent. Where other complications existed causing fever the mortality was about 35 per cent. In cases with fever, but without any complications causing the fever, the mortality was about the same.

Presence and Absence of Murmurs.—Dr. W. Gilman Thompson, of New York, asked whether the chronic endocarditis was diagnosed by means of the murmur or in some other way. According to statistics of the New York Presbyterian Hospital, in about one out of seven cases in which heart murmurs are heard no endocarditis is present. In about one in seven of the cases in which endocarditis is found at autopsy no murmur was heard during life.

Dr. Aloysius O. J. Kelly said that it is not surprising to have chronic endocarditis associated with fever. There is already an inflammatory condition of the heart valves. This may run a chronic course or there may be recrudescence of the infective process. In some cases reinfections run an acute fatal course. Some of these have exuberant vegetations on the heart valves, but some of them, on the other hand, have only inconspicuous lesions. German clinicians and pathologists have spoken of chronic recurring endocarditis, and some of Dr. Thatcher's cases would undoubtedly come under this heading.

Chorea and Fever.—Dr. John K. Mitchell, of Philadelphia, said that in many cases of chorea there is a moderate fever which lasts five or six weeks and may run its course without endocarditis. In some of these cases, however, endocarditis does develop. On the other hand, there is more than a suspicion that endocarditis may run so mild a course as not to give sufficient physical signs for its recognition.

Dr. Jacobi, of New York, said that there is no murmur present unless the lesion is on the edge of the heart valves. It is perfectly possible to have rather extensive lesions then without any murmur. On the other hand, murmurs may be present when it is not endocarditis but myocarditis that is at work. This is especially true with regard to systolic mitral murmurs. As a rule, if a murmur disappears occasionally, and if it is indistinct, it is better to diagnose myocarditis than any form of endocarditis.

Dr. Tyson, of Philadelphia, said that in a certain number of petechial eruptions the febrile course is anomalous. In a case now under observation the temperature is subnormal. The eruption makes its appearance when the patient is around on her feet and does not disappear rapidly unless she is put to bed again.

Bacterial Poisons Lower Temperature.—Dr. Victor C. Vaughan, of Ann Arbor, Mich., said that all bacterial poisons, without exception, lower temperature. Tonsillitis with a temperature of 104° or 105° F. is usually not serious. Diphtheria, however, with a temperature only slightly above a hundred may be very dangerous. And diphtheria patients with subnormal temperature nearly always die. The more rapidly bacteria poisons are given off the lower is the temperature. Nature's protective reaction is fever, and if she is able to maintain a high temperature the invading bacteria are, as a rule, being successfully resisted.

Chronic Endocarditis and Continued Fever.—Dr. Osler described some cases in which chronic endocarditis was accompanietd by fever for many months. Usually the pathological condition in these cases was that of a chronic vegetative endocarditis without much erosion or ulceration of the valves. Fever dominates the clinical picture. In one case the fever lasted thirteen months, in others for four and seven months respectively. Recently he saw a physician in whom the fever lasted for seven and a half months. Years ago these cases used to be thought by every one, even authorities in medicine, to be of malarial origin.

Dr. Peabody said that he had seen some of these cases of long-continued fever associated with endocarditis, but they are not necessarily fatal. Two cases recently seen have their murmurs still but have recovered from the fever and are in excellent health.

Opium in Myocarditis.—Dr. John H. Musser, of Philadelphia, said that opium is the best drug for the incidents and accidents of heart weakness. It has no effect on the myocarditis process itself, but it supports the heart when laboring from shock, and is of decided advantage in attacks of dilatation. When a systole occurs or in attacks of angina pectoris no better drug can be found to control the frequency of the attacks. It is especially useful in chronic endocarditis in mitigating the effect of failure of circulation to the nerrvous system. The prolonged use of opium is necessary in most cases. In endocarditis with melancholia it is especially of service.

Dr. Fussell, of Philadelphia, said that while morphine is usually not considered to be a diuretic, he has seen a prompt increase of urine take place as the result of its administration.

Hemophilic Joints.—Dr. P. J. Kinnicutt, of New York, described the lesions of the joints of hemophilia. These are due to effusion into the joint of blood, but there is no discoloration on the outside to indicate this. In not a few cases these joints have been taken for tuberculous joints. Kernig operated on one with a fatal result from uncontrollable hemorrhage. In other cases only the occurrence of severe bleeding after the pulling of a tooth revealed the underlying blood dyscrasia. In a certain number of cases the joints have been thought affected by arthritis deformans. In some cases, as in one described by Dr. Kinnicutt, there may be no hereditary, hence the greater danger of mistaking these cases. There seems no doubt that some of these cases develop *de novo*. In Dr. Kinnicutt's case the condition was congenital, though the tracing of the family history through four generations showed no trace of bleeders. There was a history of diabetes, however, and both father and mother had sprung from the same stock, their ancestors in the fourth generation being brother and sister.

Neurotic Heart.—Dr. Beverly Robinson, of New York, discussed various phases of the neurotic heart and said that they were almost less understood than the serious organic lesions. Not infrequently there are vascular or muscular changes present which make differentiation very difficult. Undoubtedly the cases of slow heart are among the most difficult. Not only is their pathology obscure, but the causes of the condition are practically unknown. Dr. Robinson has found that massage with a certain amount of stimulation, especially with coca, is extremely important. Notwithstanding the fact that these patients are often anemic, iron does not produce good results and often seems to be practically inert. Undoubtedly some of the cases of nervous heart go on to dilatation and subsequent hypertrophy. At times cardiac murmurs are nervous in origin and no valvular lesion will be found postmortem. The differentiation of the irregular features of neuroses of the heart from myocarditis is extremely difficult. The Nauheim treatment seems to be beneficial wherever the neurotic elements predominate in the case. If there is myocarditis at the same time as the neuroses, then the Nauheim treatment is especially likely to do good.

Pneumococcus Sepsis.—Dr. John S. Thacher, of New York, described an especially severe case of pneumococcus sepsis recently under his observation. The patient came into the hospital on the sixth day with a severe pneumonia, but the heart sounds perfectly clear. The case seemed to run the ordinary course of an acute lobar pneumonia of the right lower lobe. The patient had an alcoholic history, though a gentleman in all other respects. On the eleventh day he seemed to be getting better, but then there was a relapse of symptoms and on the fourteenth fluid was found in the chest and there was a rise of temperature. Only two and one-half days before death was there any murmur in the heart. Then a diastolic murmur was heard at the apex and the conclusions therefrom were confirmed at the autopsy. There was a thrill all over the blood vessels and it could be felt even in the leg, so that if the patient's calf was grasped a pounding thrill could be felt. The day before death lumbar puncture showed the presence of pneumococci in pure culture. The pleural fluid also contained these micro-organisms. The day before death pneumococci were found in the blood. Autopsy showed incomplete resolution of the pneumonia. There were no patches of actual consolidation, but there was intense congestion.

Perforation in Child's Typhoid Fever.—Dr. J. P. Crozer Griffith, of Philadelphia, reported six cases of perforation in typhoid fever in children. Perforation is said not to occur so frequently in children as in adults, but there seems no doubt that more careful diagnosis will show it to be more frequent than thought. As in other phases of typhoid fever in children the symptoms are quite different to those in adults. In most cases there is very little complaint of pain and the reaction of the organism is by no means so prompt as in adults. All of Dr. Griffith's cases proved fatal mainly because of the inability to recognize early enough the actual condition present and consequently to have operation, though operations were refused in several of the cases. In children of ten, eleven and twelve years of age the pain is often no more than that seen in cases of typhoid fever without perforation. Often patients do not appear ill for twenty-four hours after perforation has taken place. In one case a child of eleven presented no symptoms of typhoid fever at all, being a walking case, until perforation took place, when the condition seemed to be one of gastro-enteritis. As the symptoms occurred shortly after eating a plate of ice cream this seemed to be the most likely diagnosis. The next day, however, intense pain and abdominal distention set in and then more careful investigation showed the presence of rose spots.

Dr. Jacobi, of New York, said that perforation in

typhoid fever in children often took place without any premonitory symptoms. Usually in these cases there is some diarrhea, but the perforation will take place without any warning diarrhea.

Dr. Peabody, of New York, said that perforation often takes place in adults as well as children in cases where there has been no diarrhea. Indeed, absence of diarrhea represents one of the warning signs of the possibility occurring .

Hematemesis from Gastric Ulcer.—Dr. W. Gilman Thompson, of New York, gave the details of some two hundred cases of gastric ulcer in which the principal symptom was the vomiting of blood. In one case out of four there was a fatal termination sooner or later in the history of these cases. Undoubtedly some of these patients having passed from observation have had fatal terminations so that the actual mortality from this affection is worse than has been found from the statistics as they can be gathered in hospital experience. Since the results are so bad under medical treatment it seems important that surgical treatment should be applied. Twenty of these cases were transferred from the medical division of the hospital to the surgical and operated upon. Five of them proved to be something else besides ulcer of the stomach. In one there was diffuse tuberculosis of the gastric mucosa. In one a duodenal ulcer was present. In one nothing was found, and this has been the experience in other cases that in spite of furious hemorrhage from the stomach no lesion could be found. Unfortunately some of these cases in which surgical exploration showed no lesion have proved fatal after operation, and so medical men have become discouraged.

Diagnosis and Complications.—The ordinary methods of diagnosis are by no means sure. The gastric analysis by chemical means does not furnish useful information, either as to diagnosis or prognosis. As a rule, any one chemical test of the stomach contents is of no value for diagnostic purposes. The results of a number of test meals must be compared. It is scarcely justifiable to pass the stomach tube more than once in a patient suffering from gastric ulcer from which there has been bleeding. In a certain number of cases of hemorrhage from the stomach adhesions of the stomach wall are found and most of the patient's discomfort comes from the presence of these adhesions. In two of Dr. Thompson's cases after the breaking up of the gastric adhesion, patients had no more discomfort and have lived well for several years since.

Recent Surgical Statistics.—Dr. Thompson said that the recent surgical records of operated cases of gastric ulcer are most encouraging, and especially considering the fact that medical means are so futile in the treatment of this affection. Moynihan, the English surgeon, has reported operations on one hundred and thirty cases of gastric ulcer with only two deaths. Other surgeons are reporting results almost as good. Undoubtedly more can be accomplished and with more assurance by surgical means than by any other.

Etiology of Gastric Ulcer.—A curious feature of the etiology of the disease is to be found in a comparison of the statistics of Bellevue Hospital with the Presbyterian. Of patients admitted at Bellevue only one in three thousand suffer from gastric ulcer. At the Presbyterian one in eighty of the medical cases have this affection. At Bellevue alcoholism and starvation with hard living and infection are rather the rule in patients' histories. At the Presbyterian seamstresses and house servants generally who are recommended by their mistresses are received much more generally, and these constitute the anemic cases in which gastric ulcer occurs more frequently. Males suffer from the disease not so frequently as females, but still in quite large proportion, but at a later age, as a rule.

Metal Poisoning.—One-fourth of all the cases of males in Dr. Thompson's list proved to be metal workers. No one metal seemed to have been especially favored in this matter. Some of them were workers in brass, some of them in lead, some of them typesetters, and it would almost seem that the presence of contact with metals had something to do with the occurrence of the ulcer. In a private patient, Dr. Thompson found that a severe hemorrhage, evidently due to a gastric ulcer, followed upon the taking of arsenic for many years. The patient suffered from eczema and had been advised by a physician to take arsenic. During his travels around the world he had had it constantly by him, and on his return to New York had been suddenly taken with a furious hemorrhage, which proved fatal.

Minute Ulcers.—Dr. Francis Kinnicutt, of New York City, said that it is often extremely difficult to discover the minute ulcerated spot from which a severe hemorrhage may proceed. At times even after the most careful searching it cannot be discovered. This is true even on the autopsy table, where every facility for thorough search is afforded. It can easily be understood, then, that a surgeon will find it difficult to discover such ulcers within the stomach cavity. On the other hand, often when death seems impending hemorrhages stop, patients recover and remain in good health for years. A case recently sent to the surgical ward of the Presbyterian Hospital illustrates this. Hopeless of medical treatment proving successful, it is sent to be operated upon, after having had successive hemorrhages for many days. No hemorrhage occurred in the surgical ward, and operation was put off and the patient eventually recovered without surgical intervention, and has since remained well.

Results of Elections.—The following nominees recommended for election to membership by the council were elected: Drs. A. B. MacCallum, of Toronto, David Riesman, of Philadelphia; Adolf Meyer, of New York; J. L. Miller, of Chicago; R. H. Babcock, of Chicago; Thomas McCrae, of Baltimore, and S. S. Adams, of Washington The following nominees recommended for election to associate membership by the council were elected: Drs. J. D. Steele, of Philadelphia; Joseph Sailer, of Philadelphia; Joseph A. Capps, of Chicago; Henry Christian, of Boston; A. E. Taylor, of San Francisco; L. A. Connor, of New York, and Theodore Janeway, of New York. The following officers were elected for the ensuing year: President, Dr. Frank Billings, of Chicago; vice-president, Dr. Francis Kinnicutt, of New York; treasurer, Dr. J. Crozer Griffith, of Philadelphia; recorder, Dr. S. Solis-Cohen, of Philadelphia.

(To be Continued.)

BOOKS RECEIVED.

American Alkalometry. Volume IV. 8vo, 709 pages. Clinic Publishing Co., Chicago.

Transactions of the Lucerne County Medical Society for 1904. 8vo, 204 pages. Wilkes Barre

Open Air Treatment of Pulmonary Tuberculosis. Demi-8vo, 176 pages. Illustrated. By Dr. F. W. Burton Fanning. W. T. Keener & Co., Chicago.

Twenty-fifth Annual Report of the Health Officers of the District of Columbia 8vo, 210 pages. Illustrated. Government Printing Office, Washington.

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ORIGINAL ARTICLES.

CLINICAL FEATURES AND TREATMENT OF EPIDEMIC CEREBROSPINAL MENINGITIS.[1]

BY FRANCIS HUBER, M.D.,

OF NEW YORK.

IN accepting the kind invitation of your chairman to read a paper on cerebrospinal meningitis, an honor duly appreciated and acknowledged with thanks, the writer is well aware that but little has been added to our knowledge, of many important features, though we have had ample opportunities to study the various clinical manifestations of the disease. In the opinion of numerous excellent observers, the germ is taken into the nasal passages and thence gains access to the cranial cavity through the lymph and blood circulation at the base of the brain and particularly the cribriform plate of the ethmoid bone. Acting on this theory the intranasal use of germicides has been suggested.[2]

A simple saturated solution of boric acid, sprayed into the nasal passages twice a day, the throat being treated with the same solution, is thought to be sufficient, so far as concerns means that may safely be put in the hands of the public.

There is nothing new in this. Jacobi[3] says: "The modern progress of our acquaintance with the etiology of infectious diseases adds to our preventive, not yet to our curative powers." "The nasal secretion in which the diplococcus is of frequent occurrence, requires particular attention." In "Some Preventives"[4] the importance of nasal injections to prevent the invasions of diphtheria, tuberculosis and occasionally meningitis is discussed in a masterly way.

With a general mortality of about 65 to 70 per cent. (the largest number of the fatal cases occurring in the first week) the main problem is one of prevention rather than cure. To limit the prevalence of the disease is the problem the Health Department must face. As has been well said, "its efforts should be supplemented by all possible care on part of individuals, as is always the case in matters of sanitation[5] and the health authorities we must look for the improved conditions tending to prevent the occurrence of the disease in an epidemic form. It is to be sincerely hoped, that the commission lately appointed will succeed in unveiling many obscure problems and possibly diminish the mortality or rather limit or prevent the outbreak and spread of the disease.

Councilman[6] urges a careful study of the sporadic instances. He believes that "The presence of these sporadic cases is of importance in the occurrence of the epidemics. The *Diplococcus intracellularis* is an organism of feeble vitality; it dies out easily on exposure to drying and light and is incapable of a saprophytic existence. In the absence of the intervening infections, it would be impossible for the period of epidemics to be bridged over. Not only this, but there is evidence that this organism can produce other infections and may even live as an inhabitant on the normal mucous membrane."

In the absence of positive knowledge, it is assumed that at certain times the power of infection is increased by an increase in the virulence of the diplococcus or a decrease in the resistance of the tissues. A complete and interesting historical review of the different epidemics which have appeared in the United States was presented by Jacobi in a paper read before the German Medical Society April 3, 1905.

The general belief is that the specific poison is not transmitted by contact from person to person. The danger (of direct contact) has been considered slight; recent observations have somewhat altered this opinion. The unusually large percentage of cases (about one in ten), in which two or more were affected in the same family (not necessarily at the same time), the occurrences of multiple instances in the same house, its appearance in the better sections and the transmission of the infection to the nurses and physician in attendance, led to the strong suspicion that under favorable conditions the malady is directly communicable. Two cases of ward infection in children are known to the author. To be on the safe side, it is well to discourage visits on the part of relatives and friends.

A number of isolated cases crop up at different points. The germs appear to act in a peculiar manner and apparently show an "elective affinity" for certain localities or individuals in many instances. It is impossible to trace any connection between successive cases.

The experience at Beth Israel Hospital may throw some light upon this phase of the subject. Upon three different occasions within the past two months cases were admitted, the patients, natives of Russia, having been in the country but two and five days and two weeks respectively. Last spring, in Gouverneur Hospital, a fine-built man recently arrived from Ireland, died of the malignant type. Lately the spread of the disease has been attributed to the flea.

The disease is more common in the crowded districts, where sanitary and hygienic conditions are sadly neglected. During the severe cold weather of the past season, the dwellers in the

1 Read at the meeting of the New York State Medical Association (New York County), April 17, 1905.
2 New York Medical Journal, March 25, 1905, p. 602.
3 Therapeutics of Infancy and Childhood, p. 195.
4 Philadelphia Medical Journal, December 10, 17, 24, 1898.
5 New York Medical Journal, March 25, 1905, p. 602.
6 Journal American Medical Association, April 1, 1905.

tenements were closely housed. In many of the rooms the sunlight never penetrated, the air was stifling and impure. Atmospheric conditions must be considered. Following each thaw in the past few months, an increase or new crop of cases was noted.

A number of the children affected under more favorable surroundings, presented evidences, more or less marked, of nasopharyngeal obstructions and mouth-breathing.

Nasal catarrh, conjunctivitis, as also bronchitis, were observed in approximately one-quarter of the cases. Otitis was less common. As these conditions are of frequent occurrence in the lower districts it is impossible, in the absence of cultures, to say to what extent the meningococcus was responsible.

One attack probably confers immunity. Councilman could only find the reports of five cases in which the disease presented itself twice in the same patient.

TABLE OF 112 CASES.

Age.	Under 1 year.	1 to 2 years.	2 to 5 years.	5 to 10 years.	10 to 15 years.	15 to 20 years.	Over 20 years.	Total.
Male	7	5	11	13	5	7	8	56
Female	7	10	12	15	7	4	1	56
Recovered		4	3	8	6	4	3	28
Improved			3	1		1		5
Unimproved	4			1				5
Died	10	11	17	18	6	6	6	74

Oldest patient, man, forty-eight years; fatal.

For the above table of 112 cases of cerebrospinal meningitis treated at Gouverneur Hospital in 1904, the author is indebted and takes this opportunity to express thanks to Dr. P. W. Monroe, late house physician. (All doubtful cases were excluded).

In reviewing the above, we find that males and females were equally represented. Seventy-four patients died, 28 cured; 5 discharged improved and 5 unimproved.

Under one year there were 14 cases, or 12½ per cent. of the entire number admitted. Under five years of age we find 52 cases, comprising 46½ per cent. of the entire number admitted. Under ten years of age we find 80 cases, comprising 71 per cent. of the entire number admitted. Under fifteen years of age we find admitted. There were 23 cases between 2½ to five years of age, and 28 between ages of five and ten years. The largest group, therefore, was between ages of five and ten years, the next between two and five years. Recoveries, 28; 14 recovered within three weeks after having taken sick. Of this number 10 were well in two weeks or less; one was well on the seventeenth day; three were well in about three weeks. Of the remaining 14, 4 recovered in four weeks, 1 in two months, 3 in six weeks, 3 in three months, 2 in seven weeks, 1 in two months.

Symptomatology.—Latimer claims "that the psychical phenomena are most apparent in those cases in which the cortex is most implicated, the special sense disturbances where the base is most involved and the muscular and general sensory manifestations when the spine is invaded." No such sharply defined clinical states were observed in practice.

In a general way, it may be stated, in the early stages, "the symptoms are those of exaggerated nerve sensibility, pain, general hyperesthesia, photophobia, aversion to sound, irregular and forcible muscular contractions, restlessness, delirium, perhaps convulsions, followed by indifference to light, disappearance of a pain, the pupils become dilated, and apathy even coma, may set in. Intense prostration, somnolence, apathy and coma are present, the direct result of the infection at a very early period, within a few hours of the invasion.

Patients coming under observation within eight, twelve to fifteen hours show marked prostration, general muscular relaxation, ashy pallor, eyes somewhat sunken, pupils contracted, very rapid feeble pulse and a cold clammy skin. The internal temperature is low, moderately elevated or high. A greater or less degree of apathy and somnolence is observed, or coma more or less profound may exist. Some are quiet, others extremely restless and excited or delirious. Chills, headache and vomiting (in children, convulsions, localized or general, or an algid state), occur as a rule.

II.—TABLE OF 74 DEATHS IN A SERIES OF 112 CASES—FROM 1 TO 230 DAYS.

Day of death.	No. of cases.	Day of death.	No. of cases.
1st	2	29th	1
2d	6	32d	1
3d	6	36th	1
4th	4	39th	1
5th	8[1]	42d	1
6th	3	45th	1
7th	3[2]	46th	1
8th	1	47th	1
9th	2	49th	1
11th	3	50th	1
12th	4	56th	1
13th	1	58th	1
14th	4	69th	1
15th	3	119th	1
17th	1	124th	1
19th	2	141st	1
20th	1	209th	1
23d	2[3]	230th	1
	56		18

1 Twenty-six cases or 23.2 per cent. of patients admitted, comprising 35 per cent. of the fatal cases or 46 per cent. of those dying in first twenty-three days.

2 Thirty-two cases, or 28.6 per cent. of admissions, forming 43.5 per cent. of the fatal cases or 57 per cent. of those dying in first twenty-three days.

3 Representing 50 per cent. of admissions, or 75.7 per cent. of the fatal cases.

In the series of 74 deaths, 56 occurred during the first 23 days. The remaining 18 in from 29 to 230 days. Twenty-six died during the first 5 days, equalling 23.2 per cent. of admissions, and 35 per cent. of the fatal cases. Thirty-two died during the first week, equalling 28.6 per cent. of admissions, and 43.5 per cent. of the fatal cases. Fifty-six died during the first 23 days, equalling 50 per cent. of admissions, and 75 per cent. of the fatal cases.

On the other hand, the signs of the invasion may be mild. There may be a little apathy or moderate implication of the mental faculties. Vomiting is noted once or twice. There is more or less headache and some little pain or stiffness of the neck. The temperature is somewhat above the normal.

In the exceptional cases in which there is a so-called prodromal period of one or two days, careful examinations (as in several cases observed lately) show an acute invasion, with mild manifestations, the signs becoming pronounced within thirty-six to forty-eight hours.

Between these two extremes all degrees are found. The distinctive features, however, are the sudden onset, in many the exact hour was given, more or less mental involvement, pain and rigidity of the muscles of the back of the neck, vomiting and headache.

The subsequent course may be extremely irregular, though headache, rigidity of the neck, retraction of head, the characteristic position and facies, somnolence or coma, irregular temperature and Kernig's sign are common factors. Other distinctive manifestations will be discussed later.

In the infant the retraction is frequently not noticed until several days have elapsed, though the persistent vomiting, somnolence, high temperature, irritability and convulsions should put us on our guard.

In reviewing the series it is difficult to classify a number of cases, running a very irregular course. In the absence of a better, Osler's subdivision may be employed. Three forms are described: (1) The malignant; (2) ordinary; (3) anomalous forms, (*a*) abortive, (*b*) intermittent, (*c*) chronic form.

The *fulminant* type begins suddenly with profound toxic symptoms; a generalized purpuric eruption is usually present. The course is rapidly fatal in from a few hours to several days. In one of our patients with hyperpyrexia the temperature reached 109° F. In the most rapid case in our series death occurred in fifteen hours.

In the *mild or aborted* cases the onset may be stormy or otherwise, the symptoms gradually improve, and the patient is convalescent within a week or two. Such patients should be carefully watched and warned, as a relapse may take place subsequently, within a fortnight; in others running a longer course of two to four weeks, the mental state clears up, the retraction and rigidity gradually disappear and the temperature and pulse become normal. It is very difficult to keep these patients quiet in bed; they will sit up in spite of everything.

The intermittent type is quite frequent. Its characteristic features are, exacerbations of fever recurring daily or every other day, or the curve is of an intermittent or remittent character.

A number of cases become chronic. The prolonged course, extending over a period of months, depends upon brain abscesses or chronic hydrocephalus. The patients sink into a condition of marasmus with extreme retraction of the abdomen. In chronic hydrocephalus the history is interrupted by temporary periods of improvement in the mental state and general symptoms and is about as follows: We find progressive emaciation sometimes quite rapid, irregular temperature, becoming subnormal for days or weeks, alternating apathy and even coma, paroxysmal vomiting, incontinence of urine and feces during the relapse, now and then convulsions, marked retraction of the abdomen, periodic headache, dilated pupils and occasional delirium. In infants the head assumes the characteristic shape. Coma, convulsions or exhaustion lead to a fatal ending after two to eight months and longer suffering.

Headache occurs with different degrees of severity, occasionally so intense as to give rise to shrieks even in the comatose stage.

The pain may be frontal, parietal, at the base or general, or it may extend to the neck and back. Later on the paroxysmal headache is usually to be attributed to chronic hydrocephalus. In some the pain persists for years. Neuralgic pains may occur along the various spinal nerves in others. Severe abdominal pains are met with in children.

General convulsions were of common occurrence in the young at the onset, or later on in severe or fatal cases. Localized convulsive seizures were noticed in the facial muscles, less frequently one extremity or one-half of the body was involved. The difficulty in deglutition of short duration, disappearing in thirty-six to forty-eight hours, was probably due to muscular paresis. Strabismus, ptosis and loss of power of the sphincters of the bladder and rectum with incontinence of urine and feces, were frequent. Monoplegia and hemiplegia have been observed. The monoplegia was of a transient character, even a hemiplegia of several months' duration may disappear. Muscular tremors, rhythmical in character, general or limited, and frequently involving the tongue, were of common occurrence.

Joint pains without much swelling were seen in a few instances. In one case of endocarditis, with a history of painful joints, the mode of death by respiratory failure induced Dr. J. H. Bailey to do a post-mortem lumbar puncture. The turbid fluid was found to contain the pneumococcus in pure culture. The spine, particularly in the cervical portion, may be very sensitive on pressure. Pressure over the occipital region and along the spine is attended by more or less acute pains even in the chronic stage. Any attempt to move the contracted muscles in the acute stage occasioned great suffering. Kernig's sign was present in nearly all our cases some time or other. Pain and restlessness were increased when the test was applied early. Vomiting more or less severe occurs early. Later on it is of grave import, as it may be one of the evidences of severe intracranial changes or a symptom of hydrocephalus, constituting a distressing and dangerous symptom. In the malignant type, blood

appears frequently in the vomited matter. In one case that recovered, a fair amount of grumous material was brought up. Chills in the adult or chilly feelings in childhood are frequent at the beginning and in many instances recur during the subsequent course of the disease, particularly in the intermittent forms.

Rigidity and retraction of the head (in mild cases, the forward movement only being restricted) are characteristic. In infants several days may elapse before the symptoms appear. In the severe cases the vertebral muscles are involved, causing orthotonos more commonly than opisthotonos. Trismus is rare. The rigidity and retraction give rise to the characteristic portions; the head is drawn back, the thighs and legs are flexed and the spine is arched forward to a greater or less extent. In the favorable cases the rigidity and contraction gradually grow less and less, and, according to the character of the infection, disappear within one or two weeks. In others the symptom complex may last for two to four or six weeks. In the chronic type it persists for months, at times improving with the improvement in the general symptoms and then relapsing.

Hyperesthesia adds to the suffering. The least touch, any attempt to examine or to perform the necessary services, causes the patient to cry and resist. Many of the older children rest quietly as long as they are not disturbed. In the subacute stage they are contented, and when asked "How do you feel?" would answer, "I am better" or "I feel well," though the temperature was still elevated and the general symptoms were marked.

In the acute stage, the mental condition varies in the different patients. During the stage of prostration, the patients can be aroused, but with difficulty. In some there is apathy, somnolence, stupor or coma. Now and then there is a slight improvement, followed by a relapse; in others the coma persists until death. At times consciousness is regained in a few hours or it may not be for several days and even in weeks or months. In the subacute and chronic stages, the periods of improvement may be followed by a setback. Restlessness, sleeplessness, muscular tremors and delirium occur early or late.

The temperature does not follow any regular course. Remissions and recrudescences are frequent, the curve is irregular and variable. There may be little or no elevation, with marked retraction and other evidences of cerebral and spinal involvement. No prognostic value can be attached to sudden drops; a fall of 7, 8 and even 9° F. occurred in cases which eventually recovered. In other instance, a sudden rise of 6 or 7° was noted. The pulse in our experience in children has usually been rapid; in adults it may be full and strong at first, often, however, it is increased in frequency. The chief characteristic is its irregularity; it may be rapid and feeble, or slow and intermittent. Marked variations in frequency during the different times in the day and on consecutive days were observed.

No characteristic respiratory difficulty occurs. The respiration may be irregular, sighing or of the Cheyne-Stokes type; in convulsions and coma the peculiarities belonging to these states are present. General cyanosis is often observed. Now and then pulmonary edema supervenes. In many of the fatal cases death was due to paralysis of respiration. The respirations would become slow, perhaps as low as three per minute, and then stop, the heart continuing to act a short time longer.

The tongue, teeth and lips were covered with sordes in a fair proportion of cases. Usually there was a heavy coating, which gradually disappeared, leaving a red raw surface. In a very small number there was a light fur. Considerable difficulty in deglutition was met with in many early in the disease. The trouble was readily overcome by gavage resorted to a few times. Muscular tremors of tongue and mouth were of frequent occurrence.

Retention of urine was a frequent complication in the early stages. Constipation was the rule. Incontinence of urine and feces was a common feature during the stage of coma and in the relapse.

Urinary examinations were made in many cases. Traces of albumin, disappearing in a few days, and occasional casts were discovered in many specimens. Hematuria, followed by suppression, was met with a few times in the malignant form. Aside from the increased leucocytosis, the blood did not show any positive changes. With improved technic several observers report finding the diplococcus in the circulation in many instances. A leucocyte count of 40,000 was found on the first day in several instances. The number varied from 15,000 to 30,000 or 35,000.

A history of spots was obtained in a number of patients admitted late. Petechiæ were observed in one out of every four cases which came into the hospital early, the eruption appearing within four to twelve or fifteen hours, and fading within three or four days. Petechiæ were occasionally present upon the conjunctiva; at other times larger areas of conjunctival redness were noticed, not associated with conjunctivitis or any swelling.

In some of the fulminant type there was increasing cyanosis; large purpuric spots and hemorrhagic extravasations, or large irregular spots (resembling port wine marks), appeared upon the back and limbs. Hemorrhages from the mucous membrane occurred in the malignant type.

The rash was quite profuse in some that recovered, and absent in many of the severe and fatal cases. Some of the children presented parallel hemorrhagic streaks upon the abdomen and chest, due to scratching. A diffuse mottling of extremities, ears, etc., disappearing in a few

hours, was common in the early stages; later on, the appearance was of grave prognostic import. In the first twenty-four hours the face was of a pallid hue, the eyes sunken, and the surface generally cold. Cyanosis of a transient character was noted at irregular times during the progress of the chronic type.

Transitory irregular patches of erythema upon the face, forehead or ears were frequent. The tache cerebrale was seen early and persisted. Numerous minute red spots (resembling the eruption of scarlet), particularly well marked in restless subjects, were seen every now and then over the elbows, knees, trochanters and shoulders. Roseola, erythema nodosum and urticaria were infrequent occurrences.

No particular difficulty was experienced in distinguishing the drug eruptions due to the bromides or the coal-tar products.

A tendency to hemorrhages in the skin upon slight trauma, or at points of irritation was frequent. Strangely, however, no bad result attends the giving of subcutaneous injections of salt solution in these cases. In several prolonged cases purpuric spots occurred late in the disease. In Willie G. we found them on the sixty-first and again on the seventy-first day. In others they persisted until death.

Herpes (once supposed to justify a favorable prognosis) were encountered more frequently than petechiæ, and were present in about one-quarter of the cases. They occurred about the third or fourth day, or later, and appeared upon the lips, alæ nasi, around and about the ears and cheeks, now and then in successive crops. In some of the chronic cases deep scars remained. The eruption was noticed upon the sternum in one case, in another upon the forehead, and again in the intercostal region, once along the outer aspect of the thigh. Several times the distal phalanges were the seat of a herpetic or bullous eruption. Urticaria, roseola and fairly large blebs on the finger tips and body generally were observed occasionally. Once a diffuse erythema was seen persisting for hours, closely simulating scarlet fever.

Ear complications were frequently overlooked in consequence of the severe constitutional disturbances. On several occasions a seropurulent or purulent flow occurred rather unexpectedly. Complete deafness due to disease of the internal ear remained in a small percentage.

Photophobia and contracted pupils, present in the beginning, were followed by dilatation and absence or slowing of the reflex later. Inequality of the pupils, hyppus or feeble response were observed in others. Nystagmus was seen now and then, strabismus and ptosis in others.

To Dr. Martin Cohen, who kindly examined a number of cases with the ophthalmoscope, I am indebted for the accompanying table. The malconditions found are arranged alphabetically, with the number of cases and uni- or bilateral character of the affection:

Name of Affection.	Uni- or Bilateral.	Number of Cases.
Contracted retinal arteries	Bil.	2
Contracted pupils	Bil.	4
Corneal ulcer	Bil.	1
Dilated pupils	Bil.	10
Catarrhal conjunctivitis	Bil.	5
Haziness of vitreous	Bil.	1
Irido-choroiditis	Unil.	1
Iritis	Unil.	1
Neuro-retinitis	Bil.	13
Nystagmus (lateral)	Bil.	1
Optic atrophy (partial)	Bil.	2
Ptosis	Unil.	1
Reactions (pupillary) absent	Bil.	14
Retinitis hemorrhagica	Bil.	1
Strabismus conv.	Bil.	3
Strabismus div.	Unil.	1
Veins in retina dilated and tortuous	Bil.	5

Sequelæ.—The following have been observed: Chronic hydrocephalus, meningo-encephalitis and secondary contractions, hemiplegia, persistent headaches, blindness, deafness, idiocy, neurasthenic conditions, persistent neuralgia in various portions of the body, and mental changes of different degrees.

Mode of Death.—In the first week, toxemia, cardiac or respiratory failure, convulsions, coma and in the latter stages exhaustion, respiratory failure, sepsis from bed sores or trophic ulcerations, incessant vomiting and coma or convulsions led to a fatal termination.

In *American Medicine*, April 1, 1905, Stockton reviews the treatment of the disease. As those of us who see large numbers of cases have already done, he confesses that the sanitarian is more useful than the therapeutist. The various approved methods suggested in different epidemics are discussed in a brief and lucid résumé. "When we recollect the difference in virulence in different epidemics, it is easy to understand how faulty notions as to the effects of measures or treatment may gain credence."

In considering the treatment in detail and estimating the value of any plan, certain factors must not be lost sight of: (*a*) The large proportion of malignant cases, (*b*) the grave character of the anatomical changes, and finally the great irregularity in the clinical course.

It is possible to predict the subsequent progress from the initial symptoms. A mild onset may be followed by severe and grave symptoms. On the other hand, a stormy invasion, in a few fortunate instances, may be succeeded by a rapid decline of symptoms and an uneventful convalescence.

An apparent convalescence is frequently interrupted by an unexpected recrudescence or relapse. Severe and apparently grave manifestations may be cleared up unexpectedly.

In the absence of a specific remedy or antitoxin (which would have to be employed early), the treatment is a general one.

To secure the necessary rest of mind and body,

aside from the possible danger to others, in private practice, the case ought to be isolated and placed in charge of a good nurse in a well ventilated room. The room need not necessarily be kept dark—a bandage over the eyes serves the same purpose.

The general nutrition must be sustained by an appropriate fluid diet; an ice bag to the head, with proper support to head and neck, will add to the patient's comfort; raising he head of the bed six to eight inches appears to afford relief. Plenty of water is to be given and the body functions in general regulated. The urine may require to be drawn off during the early stages. The ordinary rules applicable to a severe febrile condition must be observed. The nasopharynx, frequently the seat of catarrhal conditions, ought not to be neglected.

Warm salt solutions six-tenths of one per cent., slowly poured into the nares by means of a spoon, improves the breathing and in a measure prevents the tongue and mouth from becoming dry and parched. During the early stage, when swallowing is difficult because of a paretic condition of the pharyngeal muscles, and later on in chronic cases, forced feeding through the nose or mouth may be indicated.

Pain and restlessness must be relieved by codeine or morphine per os or hypodermically. Phenacetin, with or without codeine, relieves the headache, etc. Bromides have been recommended for the same purpose. They, however, disturb the stomach and give rise to a fetid breath.

Ergot in the beginning has been greatly praised. Severe vomiting in the later stages is relieved by lumbar puncture, small hypodermics of morphine, ice to epigastric region and careful dieting. Sodium benzoate or caffeine in appropriate doses subcutaneously, affords prompt relief in cases in which pulmonary edema occurs. Adrenalin is of value in this state.

Packs or baths (90°, 95° or 98° F.), with or without mustard, relieve the irritability, improve the general circulation and frequently promote a quiet sleep. They lessen the muscular spasm and rigidity in general.

The method of Aufrecht, initiated in 1894, has been extravagantly lauded. M. Rogansky published remarkable results, claiming 66 per cent. recoveries. Hot baths at 104° F. (an ice-bag being applied to the head), were administered for fifteen to twenty minutes once or twice a day.

It is claimed that they restore consciousness, calm the delirium and restlessness, and relieve the pain. The temperature, vomiting or rigidity was not affected to any extent. The method is worthy of a trial.

"Lumbar puncture is not a procedure for the careless or the novice. It demands skill, cleanliness and judgment" (Elsner). In our hospital practice, the clinician is materially aided by the bacteriologist.

In fifty-one cases occurring during one term of service the diplococcus was formed in forty-four. One patient, an Italian not familiar with English, struggled so that it was impossible to proceed; in four others the puncture was made very late.

In one of this year's cases pneumococci were found. In another, an infant, suspected to be syphilitic, polynuclear leucocytes were found in the fluid; later on, however, the diplococcus was detected.

The organism has been detected in smears as early as twelve hours from the onset. In the centrifuged specimen, as late as the thirty-seventh to forty-fifth and forty-eighth day. Cultures have revealed its presence much later.

Lumbar puncture, apart from its diagnostic value, relieves the intracranial pressure to a certain extent. It is necessary to repeat the procedure at intervals, particularly in chronic cases. Lumbar puncture, with injections of various antiseptics, has not yielded very brilliant results.

Each case presents its individual indications. The strength of the patient must be maintained by appropriate nourishment and skilful nursing. Nourishment and nursing are of the utmost importance, particularly in the protracted cases. The use of Credé or mercurial ointment along the spine has not met with any appreciable success. In the typhoid state alcohol is indicated and well tolerated. In chronic hydrocephalus K.I. internally in small doses and lumbar puncture may prolong life. Surgical interference may possibly give better results in appropriate cases.

The iodides are indicated with a view of causing the absorption of plastic exudates. Hypodermoclysis given early to overcome the prostration and initial shock, to dilute the toxins, later on to supply fluids to the tissues, has been of considerable value.

Local bleeding by leeches had been resorted to in a large number before admission to the hospital, without appreciable benefit.

In view of the interest excited by the antitoxin treatment a few remarks may be in place:

"That branch of bacteriology which deals with the mutual antagonistic relations of pathogenic germs is still in its infancy. The facts already discovered suggest important developments in the future. To what extent clinicians will be able to utilize these antagonisms in the treatment of diseases it is difficult to foretell." In the editorial (Medical News, March 4, 1905, p. 400), from which the above extract is made, Coley's work with the toxins of the *Bacillus erysipelatos* and *Bacillus prodigiosus* in the treatment of inoperable sarcoma is instanced. It is also stated that Metchnikoff's important data have not yet received practical applications. He has shown that the *Bacillus mesentericus*, the *Bacillus subtilis* and the bacillus of symptomatic anthrax weaken the toxins of the tetanus bacil-

lus. The bacillus of Eberth destroys the toxins of diphtheria.

A further contribution to the subject, and one which introduced Dr. E. Waitzfelder and other clinicians to resort to diphtheria antitoxin in treating cerebrospinal meningitis was made by Dr. A. J. Wolff, of Hartford. He found that there is a decided antagonism between the Klebs-Löffler bacillus and the meningococcus, and during the course of the study on this portion of the investigation found that pure cultures of the meningococcus were killed by antidiphtheritic serum, and not only precipitated when mixed with the latter, but active bouillon cultures, when mixed in bulk with the antitoxin, are precipated in the same manner.

The results obtained at Roosevelt Hospital, in the services of Drs. Peabody and Jacobi, have not tended to confirm the enthusiastic reports of the beneficial effects observed at Gouverneur Hospital. After a careful trial the procedure did not impress those who had studied the cases as influencing the disease to any degree. The intraspinal use of the remedy did not yield any better results. The latter method was tried in the children's service at Beth Israel Hospital and given up because of the negative results.

An interesting observation bearing upon the subject is the following: A little girl three years and nine months of age, previously healthy, in good physical condition, was given an immunizing dose of 2,000 units at 2 P.M. (a suspected case of tonsillar diphtheria having occurred in the family). The next morning at 10 A.M. she was suddenly taken ill, became rigid, lost consciousness and vomited a number of times. When seen in consultation at 4 P.M. she was in deep coma, pulse imperceptible, deeply cyanosed, with numerous petechiæ over body, large quantities of grumous material were vomited. Tarry stools occurred. The profound coma and pronounced evidences of pulmonary edema made the prognosis absolutely bad; death occurred at 8 P.M. In this case of malignant cerebrospinal fever, notwithstanding the fact that the antitoxin had been given twenty hours before any symptoms were noticed, the subsequent downward course was rapid. No untoward results followed the administration of a much larger dose in the other child with the infected throat.

The Natural Immunity of Young Children. A study of the normal resistance to infectious disease observed in children during the first few years of life was made by A. Schütz (*Jahrb. f. Kinderheilk.*, March 1, 1905), with the following results: The property possessed by the gastric juice of destroying diphtheria-toxin, varies with different nurslings, and is independent of age, feeding, or state of nutrition. Woman's milk possesses no noteworthy antitoxic action against diphtheria toxin. The gastric juice loses, in boiling, its antitoxic efficiency. An increased acidity of the gastric contents diminishes its antitoxic power. Apart from congenital immunity, the natural immunity of the child is chiefly expressed in the alimentary canal, and is independent of the form of feeding.

INFANTILE TUBERCULOSIS: ITS PORTAL OF ENTRY, TOPOGRAPHY AND CLINICAL MANIFESTATIONS.*

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The characters of tuberculosis differ with the different periods of life, and during the early period it is a disease to which the organism offers less resistance than in later life, and it manifests itself by a widely distributed general infection, the symptoms elicited depending on the organs infected.

Tuberculosis in young children is fairly common; thus, in 1,448 successive autopsies at the Foundling and Nursery and Child's hospitals of New York, on children for the most part under three years of age, 158, or nearly 11 per cent., showed tuberculous lesions. This is a much lower percentage than is noted by others. Thus Albu quoted by Raczynski in 11,000 autopsies on children found 19 per cent. tuberculous.

Raczynski,[1] of Krakau, analyzed 3,341 autopsies at the St. Ludwig's Children's Hospital and found that 611 cases, or 18.3 per cent., were tuberculous. These statistics, however, included older children. If we consider in Raczynski's statistics only the 1,452 autopsies on children under two years of age, we find 197 tuberculous cases, or only 13 per cent. The largest percentage of tuberculosis in his cases being between the ages of five and eight years, when it reached 27½ per cent.

The Portal of Entry.—The point of infection in most cases is a subject on which the widest difference of opinion exists among the highest authorities and between the position taken by Koch[2] that intestinal infection from cow's milk is extraordinarily rare, and that of Von Behring[3] that the larger proportion of infections are intestinal, we must seek the truth for ourselves.

The assumption that tubercle bacilli most often gain access to the human body by the respiratory tract seems well founded. It has been demonstrated by experiment that many bacteria gain access to our air passages by the inhalation of dust-laden air, and also that the expired air contains no bacteria, that is, all the bacteria carried into the air passages by dust find lodgment on the mucous membrane. The effective mechanism of the human body for expelling bacteria from the air passages,—the ciliated epithelial cells and phagocytes—is able to remove and destroy most of these bacteria, but they may penetrate the normal wall of the air passages or an inflammation or abrasion of the mucous membrane in any part may offer a further opportunity for the invasion of the human organism by some germ. The point of this invasion depends on the point of lodgment of the bacteria and the point of penetration or of inflammation or abrasion of the mucous membrane.

* Read before the New York Academy of Medicine.

It is still a question to what extent the tonsil is ordinarily a portal of entry of the tubercle bacillus, but, however, the bacilli enter, the lymph nodes of the neck may be safely considered as frequently the first lesion noted after the third year, and tuberculosis of these lymph nodes often exists where there is no evidence of other tuberculous lesions.

The importance of tuberculous bronchial lymph nodes as pointing toward infection through the respiratory tract has been well emphasized by Dr. Northrup, and they certainly form the most common tuberculous lesion found at autopsy. They are, however, usually associated with tuberculous lesions elsewhere, most often in the lungs, often with abdominal lesions, occasionally with involvement of the cervical lymph nodes. The frequency, then, of tuberculosis obtained by inhalation is apparently well established. Whether tuberculosis due to the ingestion of food containing the *Bacillus tuberculosis* is frequent, is a matter concerning which there is the greatest diversity of opinion, even among those with considerable experience at the autopsy table.

No one in New York, so far as I know, believes he has seen many cases of tuberculosis at autopsy evidently due to intestinal infection. Northrup, in his very considerable experience, noted but one such case. Dr. Hodenpyl[4] has reported one case, Boviard and Nicoll have seen four. I have shown three cases and another case has occurred recently at the New York Foundling Hospital. In 336 autopsies on tuberculous cases at Freiburg, as reported by Schmidt,[5] six showed primary infection of the mesenteric lymph nodes. On the other hand, certain eminent observers in Europe report an entirely different experience. Guthrie[6] in 77 autopsies on tuberculous cases at the Children's Hospital, Paddington, London, found 22 per cent. of the cases of intestinal origin. Still,[7] of the Great Ormond St. Hospital for Children, London, in 269 autopsies on tuberculous children under twelve years of age, considered 23.4 per cent. of the cases of intestinal origin. Heller,[8] of Kiel, in 714 autopsies on children that died from diphtheria found tuberculous lesions in 140, of which 53 or 38.8 per cent., were primary intestinal berculosis. Wagener[9] in 76 autopsies on tuberculous children under fifteen years of age, found primary intestinal and mesenteric lymph node tuberculosis with demonstration of the bacilli in 17 per cent. of these lesions, without finding the bacilli in 21 per cent. Heller and Wagener call attention to the fact that these tuberculous lesions of the intestines are often very small and that unless the intestine is examined without separation from the mesentery they are apt to be overloked.

Cohnheim and Aufrecht believe that cases of intestinal infection are not rare. Sims Woodhead,[10] Professor of Pathology at, Cambridge, England, who has had a very large experience, relates that he has noted in making autopsies, children that have died from some other disease, with tuberculous mesenteric lymph nodes and not a trace of tuberculosis elsewhere. He has seen a large number of cases where the infection seemed to be from the intestine. Although it is possible that tuberculosis of intestinal origin may be more common in England and Germany than in this country, it seems likely that this difference of opinion is due in part to a more careful search for tuberculous lesions as well as to a different judgment as to what is sufficient evidence of intestinal origin in any case. These cases reported in New York were early cases in which the lesion had not become widely disseminated. Had these cases progressed a little farther, producing extensive lesions in the bronchial lymph-nodes and lungs, none of them would have been reported as intestinal cases. Many cases seen at autopsy with considerable involvement of the intestinal lymph nodes seem to me more likely due to intestinal infection than to that through the respiratory tract, on account of the light thrown on the dissemination of tuberculosis by animal experiment.

I. Straus,[11] of Paris, in a series of feeding experiments on guinea-pigs, in order to avoid the possibility of inhalation, injected tubercle bacilli into the stomach by means of a catheter passed into that organ. The tuberculous lesions that followed were in the cecum, mesenteric lymph nodes, liver, spleen; bronchial lymph nodes and lungs, just such a distribution as is often seen in our autopsies, but never attributed to intestinal infection. On the other hand, one injection which Straus made into the trachea by mistake resulted in lung lesion only.

Dr. Prudden in hundreds of intratracheal inoculations in rabbits does not recall a case of involvement of the mucous membrane of the intestine. The rule in intratracheal injection is for the lesion to be confined to the lungs and pleura; this may be because the animals are susceptible and die early or because they may have been killed for the special ends of the experiment.

Cornet[12] in over 3,000 experiments, excluding feeding experiments, found tuberculous foci in the intestine and mesenteric lymph nodes hardly more than six or eight times, in spite of the most extensive lesions elsewhere.

It is evident that tubercle bacilli which gain access to the body by the intestines are readily carried by the lymph stream to the thoracic duct into the superior vena cava, the right side of the heart and out into the lungs. Evidence of the infection of the thoracic duct and veins is not often reported, as the discovery of this channel is not easy to the unsophisticated, and such lesions are thus usually overlooked. Those accustomed to looking in this region, however, in cases of tuberculosis find very frequently an involvement of it. Thus Sigg[13] reports that in 18 cases of tuberculosis in which vein tubercle or tuberculosis of the thoracic duct was looked for,

15 gave a positive result. In the opinion of those who are accustomed to look systematically into the thoracic duct and pulmonary veins in cases of general tuberculosis these are the common channels of dissemination of the bacilli.

Living tubercle bacilli have been found to exist fairly frequently in ordinary milk, by many observers, and it has been shown by Ravenel and others that bovine tubercle bacilli are pathogenic for man. It should, however, be noted that intestinal tuberculosis does not necessarily arise from food containing tubercle bacilli. Dust containing tubercle bacilli may be swallowed and thus cause an intestinal lesion. It has been demonstrated that tubercle bacilli survive the action of the gastric juice of guinea-pigs, as well as artificial gastric juice, and the fact that we find lesions of undoubted intestinal origin confirms this fact that they can pass through the human stomach uninjured. Von Behring has recently shown that tubercle bacilli can pass through the uninjured wall of the alimentary tract of the very young. It would seem, if Von Behring[3] is right, from the facility thus offered for acquiring intestinal tuberculosis that cases of this sort should not be infrequent. It, however, seems probable that unless they prove fatal very early, there should exist possibly an intestinal lesion and certainly lesions of the mesenteric lymph nodes of the thoracic duct, the veins, the lungs, the liver and the spleen. It has recently been shown by MacFadjen and MacConkey[14] that tubercle bacilli exist in many mesenteric lymph nodes that show no evident lesion. They examined by first grinding and then injecting into guinea-pigs lymph nodes that showed no evidence of tuberculosis, from eight tuberculous cases and from 20 non-tuberculous cases. The mesenteric lymph nodes from five of the eight tuberculous children produced tuberculosis in the guinea-pigs, and five of the 20 from supposed non-tuberculous cases also gave a positive result.

The Topography.—In looking at some of the statistics of the distribution of tuberculous lesions in children as shown at autopsy, we find the abdominal organs fairly frequently involved. Thus in 416 autopsies on tuberculous infants from one to four months old, Frobelius[15] found the lungs involved in 100 per cent. of the cases, the bronchial lymph nodes in 99.2 per cent., the intestines involved in about 27 per cent., and the mesenteric lymph nodes in 16 per cent. Schwer[16] in 123 autopsies on tuberculous children found the respiratory organs involved in 85 per cent. of the cases and the intestines in 50 per cent. Carr[17] in 120 autopsies on tuberculous children, found the lungs involved in 75 per cent. of the cases, the bronchial lymph nodes in 80 per cent., the intestines in 55 per cent., the mesenteric lymph nodes in 54 per cent. In only five cases were the mesenteric lymph nodes the sole seat of the disease. Biedert[18] has collected the data of 1,346 autopsies on tuberculous children with the different organs involved as follows: Lungs, 79.6 per cent.; bronchial lymph nodes, 78 per cent.; intestine, 31 per cent.; mesenteric lymph nodes, 40 per cent. This corresponds more nearly to the results of the autopsies I have analyzed than those of Holt, who found the lungs involved in 99 per cent. of the cases the bronchial lymph nodes in 96 per cent., the intestines in 37 per cent. and the mesenteric lymph nodes in 35 per cent.

TABLE I.—DISTRIBUTION OF TUBERCULOUS LESIONS IN AUTOPSIES COLLECTED BY VARIOUS WRITERS.

	Number of Autopsies.	Lungs. Per cent.	Bronchial Lymph Nodes. Per cent.	Respiratory Organs. Per cent.	Intestines. Per cent.	Mesenteric Lymph Nodes. Per cent.
Frobelius	416	100	99.2		27	16
Schwer	123			85	50	
Carr	126	75	80		55	
Biedert	1,346	79.6	78		31	40
Holt	119	99	96		37	35
Freeman	158	71	76		23	28

I think we must conclude that where the lesions found are everywhere advanced, it is impossible to state what the tract was in which the invasion originally occurred. For in cases of intestinal origin the lungs and bronchial lymph nodes may show very soon prominent lesions, while as soon as the lungs become considerably involved a reinfection of the intestines from the swallowed sputum may take place.

If we should take the ground suggested by the experimental work of Straus, that we can only be sure of lung infection when the lungs and bronchial lymph nodes alone are involved and that we can feel fairly certain of intestinal origin when the mesenteric lymph nodes show as advanced a lesion as the bronchial lymph nodes and lungs, then the proportion of cases of tuberculosis of intestinal origin would rise markedly.

The tabulation of these 158 autopsies on tuberculous cases emphasizes certain impressions that many of those working clinically in children have had.

Table II shows the age at the time of death of the children including only those that died before the third year; because the children in these institutions are usually adopted, if healthy, when two years old, so that the figures for the third year and later are not reliable for comparison. Comparing, however, the first and second year, we find 61, or 64 per cent., of deaths in the first year, against only 34, or 36 per cent., during the second, and two-thirds of the cases during the first year occurred between the third and ninth month.

A tabulation of the cases with lesions of the mesenteric lymph nodes or intestines, or both, gives a similar result, 67 per cent. occurring dur-

ing the first year and 33 per cent. during the second.

TABLE II.—THE AGES OF 98 CASES OF TUBERCULOSIS THAT DIED DURING THE FIRST TWO YEARS.

1 to 3 months	4	
3 to 6 months	21	
6 to 9 months	21	
9 to 12 months	15	
Under one year		61
12 to 15 months	12	
15 to 18 months	6	
18 to 21 months	13	
21 to 24 months	6	
Under two years		37
Total		98

A comparison of the age at death of all the children with all the tuberculosis children shows the average age at death to be 7½ months later in the class of tuberculous children than among the other children. In considering these figures we must bear in mind that the mortality of children during the first year is a large part of the mortality of the first five years, that is to say, the general mortality of the first year is very high.

I have prepared a table of the nutrition of the tuberculous babies as compared with the babies dying from other disease (Table III), in order to accentuate the fact that tuberculosis is a sufficiently acute general disease in infancy to cause death very often before marked emaciation takes place. In general, I believe that marked emaciation in a child under two years counts against rather than for a diagnosis of tuberculosis. Although many diseases of infancy often cause death very rapidly and before time has elapsed for much emaciation to take place, we find the nutrition of the tuberculous cases not materially worse than that of the non-tuberculous cases.

TABLE III.—NUTRITION OF TUBERCULOUS AND NON-TUBERCULOUS CASES.

	Tuberculous. Per cent.	Non-Tuberculous. Per cent.
Very poor	17	10⅘
Poor	47	44⅕
Fair	26⅓	25
Good	9	17⅘
Very good	0.67	2⅕

The distribution of the gross lesions in the 158 tuberculous cases I have tabulated is shown in Table IV. As the diagnosis in these cases rests for the most part on gross examination, without the aid of the microscope or inoculations in animals, only the most extensive involvements are noted. The part most often showing evident lesion is the bronchial lymph nodes, in 120 cases, or about 76 per cent.; the lungs next in 112 cases, or about 71 per cent., and the mesenteric lymph nodes or intestines in 52 cases, or nearly 30 per cent. The meninges being involved in 21 per cent of the cases.

TABLE IV.—THE DISTRIBUTION OF THE LESIONS IN 158 CASES OF TUBERCULOSIS IN YOUNG CHILDREN.

Bronchial lymph nodes	120	76.0
Lungs	112	71.0
Spleen	90	57.0
Liver	66	42.0
Mesenteric lymph nodes	44	28.0
Pleura	41	26.0
Meninges	33	21.0
Small intestine	30	19.0
Mediastinal lymph nodes	28	18.0
Kidney	20	13.0
Cervical lymph nodes	14	9.0
Large intestine	7	4.4
Thymus	6	4.0
Pericardium	5	3.0
Peritoneum	5	3.0
Suprarenals	3	2.0
Pancreas	2	1.3
Stomach	2	1.3
Trachea	2	1.3
Retropharyngeal lymph nodes	2	1.3
Chest wall internally	1	0.6
Hip-joint	1	0.6
Femur	1	0.6
Little finger	1	0.6

The grouping of these lesions showed such a great variety that it was impossible to classify them by organs in an intelligible manner. In order to make a compact classification I have prepared tables of the lesions accompanying (1) the bronchial lymph node and lung cases, (2) the mesenteric lymph node and intestinal cases, (3) the meningeal cases. The lesions are classified simply as cranial, thoracic and abdominal.

Of the 138 cases represented in the table of cases involving the bronchial lymph nodes and lungs (Table V) by far the greatest number, 86, or 62 per cent., showed lesions in both the bronchial nodes and lungs; 30, or 22 per cent., showed lesions in the bronchial lymph nodes, but not in the lungs, and 22, or 16 per cent., showed lesions in the lungs but not in the lymph nodes. Seven cases showed lesions in the bronchial

TABLE V.—THE DISTRIBUTION OF THE LESIONS IN 138 CASES OF TUBERCULOSIS INVOLVING BRONCHIAL LYMPH NODES AND LUNGS.

	Bronchial lymph notes, not lungs.	Lungs, not bronchial lymph nodes.	Bronchial lymph nodes and lungs.
No other lesions	7	5	15
With other thoracic lesions	4		5
With spleen	2		5
With liver	1		
With other abdominal organs	9	13	41
With abdominal and cranial lesions	3	2	16
With cranial lesions only	1	1	2
With cervical lymph nodes	1	1	1
With cervical lymph nodes and abdominal lesions	1		1
With cervical lymph nodes and joint	1		
	30	22	86

lymph nodes alone, five in the lungs alone and 15 in both the bronchial lymph nodes and lungs, in all 22 cases, which are about 14 per cent. of the total tuberculous cases.

As to the general distribution of these three classes of cases, 36 had thoracic lesions only and 95 abdominal lesions and 25 cranial lesions.

Table VI shows the distribution of the lesions in 52 cases involving the mesenteric lymph nodes or intestines, or both. Six of these cases show thoracic lesions, but no other abdominal lesions, while 29 cases show involvement of other abdominal organs and the thorax and 12 cranial lesions in addition. The 23 cases of mesenteric lymph-node involvement without evident intestinal lesion are not to be wondered at if the view is sustained that bacteria can pass through the uninjured intestines of infants. Seven of these 159 cases, or 4½ per cent., were considered by the pathologists who made the autopsies to be be cases of intestinal origin.

TABLE VI.—THE DISTRIBUTION OF THE LESIONS IN 52 CASES OF TUBERCULOSIS INVOLVING THE MESENTERIC LYMPH NODES AND INTESTINE.

	Mesenteric lymph nodes but no intestinal lesion.	Intestines but no mesenteric lesion.	Mesenteric and intestinal lesions.
Intestine alone		1	
With thoracic lesion	3	1	2
With thoracic and other abdominal lesions	10	5	14
With thoracic and other abdominal and cranial lesions	6	2	4
With thoracic and cervical lesions	3		
With other abdominal and cranial lesion	1		
	23	9	20

The tabulation of meningeal cases is chiefly interesting on account of the wide distribution of the lesions in most of the cases, for 23 of the 33 cases showed both abdominal and thoracic involvement.

TABLE VII.—THE DISTRIBUTION OF THE LESIONS IN 33 CASES OF TUBERCULOSIS MENINGITIS.

Without other lesions	3
With thoracic lesions	5
With abdominal lesions	1
With thoracic and abdominal lesions	22
With cervical, thoracic and abdominal lesions	1
With thoracic and joint lesions	1
	33

The Clinical Manifestations.—The tuberculosis of infancy is usually an acute, widely disseminated affection, which, wherever it enters in a considerable proportion of cases, involves the bronchial lymph nodes and lungs. It may (*A*) remain encapsulated in the lymph nodes and never spread, a condition apparently rare in infancy, or it may (*B*) remain encapsulated for a time and then, with an attack of measles, or whooping cough, or influenza, or other depressing disease, may spread to the lungs and other organs, or it may (*C*) never become encapsulated, but spread immediately through the lymphatics to the bronchial lymph nodes and lungs and other organs. It is usually a most obscure disease for diagnosis, the presence of miliary tubercles or small deposits in the lungs giving but slight and indefinite signs, and it is often only when the meninges become involved that a definite diagnosis can be made. The original infection is apt to be associated with a rise of temperature, but the temperature may after a few days decline to or near normal, and show but little development again until near the termination of the disease, when the presence of a considerable elevation of temperature indicates usually a mixed infection rather than the intensity of the tuberculous process. Tuberculosis of the lungs generally shows merely râles and slight changes from normal respiration, and it is only with advanced changes that signs of consolidation appear. When this stage is reached there is apt to be a thickening of the pleura, so that increased dulness or flatness and diminished breathing are added to the signs. The enlarged bronchial lymph nodes can rarely be made out.

The involvement of the meninges, which is very frequent and occurred in nearly 21 per cent. of the cases which I have tabulated, gives a typical and easily recognized set of symptoms. A disposition changed suddenly from amiable to irritable, vertigo, persistent vomiting, gradually increasing stupor, often with eye symptoms, and one-sided paralysis, disturbance of the rhythm of respiration (sighing to Cheyne-Stokes), and later the automatic movements, mask-like face, and occasionally convulsions, and all this usually with but slight temperature. Stiffness of the back of the neck with or without opisthotonos, is a very common and important symptom. The Kernig sign can usually be elicited. Evidences of tuberculosis in other organs can often be made out in confirmation of the diagnosis. The liver is enlarged, no more, perhaps, than the common fatty livers in infants, but such enlargement is very commonly present when tubercles are present in that organ. If the spleen is involved, it is usually just palpable, that is, it will come against the finger pressed beneath the free border of the ribs, with a deep inspiration and such splenic enlargement is a very valuable confirmatory sign in suspicious cases.

The duration of this disease in infants is often apparently short. In institutions it is not rare for them to die a few days after they enter the hospital. In those that are carefully watched in homes a duration of two or three or four weeks is often noticed. A condition from which it is necessary to differentiate this disease is the unresolved or persistent pneumonia which is fre-

quently seen in institutions. These are often complicating pneumonias folowing one of the exanthemata. An attempt is apparently made to resolve and the temperature drops, but gradually rises again. The respirations remain rapid and the signs persist. These children become markedly emaciated, and usually die, after gradually failing. At autopsy they show a fibrous change with bronchectasia. These unresolved pneumonias can usually be differentiated by the marked physical signs, the higher temperature, the slow course and the much more marked emaciation.

Tuberculous peritonitis I have rarely seen in an institution for infants and young children. It is an infection to which older children are subject. The same is true of the local infections.

Tuberculous cervical lymph nodes are very rarely found in infants, an argument perhaps against the respiratory infections in infancy. In my autopsies at the Foundling Hospital I searched especially for cervical lymph-node tuberculosis with rare success. Only 14 of the 158 autopsies on tuberculous cases that I have tabulated, or 9 per cent., show involvement of the cervical lymph nodes. Dr. C. N. Dowd, of this city, who has operated on more than 100 cases of lymph-node tuberculosis, 61 of which were under ten years of age, had only three under three years of age. In like manner tuberculosis of the joints occurs rarely under three full years of age.

Summary.—Tuberculosis in infancy arises most often from an infection through either the respiratory or alimentary tract; the comparative frequency of these two modes of infection has not yet been definitely determined.

The tuberculosis of early life is most common during the first year, when children are on an exclusive milk diet, and much milk contains tubercle bacilli, and bovine tubercle bacilli are pathogenic for man. At this period, owing to the structure of the intestinal wall, bacteria can probably pass through it, although it is uninjured.

Experiments on animals show that inhalation tuberculosis causes usually lesions of the bronchial lymph nodes and lungs alone, while wherever the portal of entry these structures become very early involved. Inoculation experiments prove that the mesenteric lymph nodes may be tuberculous without the presence of any gross lesions in them.

Twenty-six and one-half per cent. of the 158 autopsies on tuberculous cases at the Foundling and Nursery and Child's hospitals, which I have tabulated, show intestinal or mesenteric lesion on gross examination.

The tuberculosis of infancy, unlike that of later life, is usually an acute, widely disseminated, general disease, with moderate temperature and few symptoms and physical signs unless the invasion of the meninges give rise to symptoms.

Tuberculosis of the cervical lymph-nodes and of the joints is rarely seen under the third year. The power to overcome a tuberculous infection that has spread from the lymphatics and invaded the organs apparently does not exist in infancy.

While the autopsies I have tabulated show a very wide distribution of the tuberculous disease in these infants, they probably indicate a much less general distribution than really existed, for the data is based often on hurried gross examination without microscopical confirmation.

A series of autopsies in the same institutions, in which the intestines were carefully examined without being separated from the mysentery, and with microscopical examination of all suspicious thickenings, would probably show a much larger proportion of intestinal involvement and a still greater proportion could be found by animal inoculations.

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TWO UNUSUAL CASES OF GASTRIC CANCER.[1]

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It is one of the charms of our professional work that disease presents itself in ever varying aspects. We become familiar with certain types within which the manifestations are fairly constant; but even within these types, variations of greater or less degree occur. Our recognition of a disease in any given case must depend upon the conformity of its symptoms and signs to those described as belonging to a certain type; but occasionally the variations from the usual are so wide that deduction misleads us and our conclusion as to the process at work proves later to have been wholly incorrect. Such abnormal and unusual cases of disease become of especial interest, because they serve to remind us of the possibility of error and to prevent us from becoming overconfident of our diagnostic abilities; in other words, because they help to cultivate in us what Osler calls "the grace of humility," a virtue which he declares to be the most desirable of all in a physician's character. Cancer of the

[1] Read before the California Academy of Medicine, February 8, 1905.

stomach is one of the types of disease in which the symptoms and signs are usually so definite that the condition becomes easy of recognition; and we learn to feel that we can reason with confidence from the manifestations presented to the pathological condition that causes them. The following cases, because they did not present the symptoms and signs that are usually expected, and because the real diagnosis found at autopsy came as a surprise in each instance, seem therefore worthy of report in detail.

Case I.—A man, aged fifty-four years, a miner by occupation, entered Lane Hospital, Sept. 15, 1904. His family history was negative. Previous to the onset of his present illness he never had any serious disease in his life. He was born in England, but had lived in America for nineteen years. He was unmarried. All his life he had taken alcohol regularly, but never to excess. He had no history of venereal disease. For the past ten or eleven years his work had been heavy labor in the mines.

As recently as July, 1904, the patient was doing heavy work, and had no complaint to make. In the beginning of August he began to feel ill, and not like working, and consulted a physician, who diagnosed malaria. He was treated for this, but grew no better; so finally, later in August, he saw another physician, who found a greatly enlarged liver. During this time, and subsequently, the patient had no complaint to make except of general malaise and a feeling of flatulence and occasional pain in the bowels. These symptoms persisting, he decided to come to San Francisco for treatment.

On examination, he was found to have a greatly enlarged abdomen. Palpation in the region of the liver showed an irregular tumor extending below the level of the navel. On Sept. 19, this tumor was found upon measurement to extend 6 cm. below the level of the navel in the right flank and 2 cm. below the level of the navel in the left flank. There was no special tenderness over this mass, and it was found to be directly continuous with the liver dulness above. The abdomen contained at the time of the first examination a considerable amount of free fluid. The urine examination showed no albumin, no sugar, no casts, but a few uric acid crystals and an abundance of amorphous urates. The blood examination on Sept. 15 showed 50 per cent. of hemoglobin, 3,950,000 red corpuscles and 14,500 white corpuscles. No analysis of stomach contents was made, as there were no symptoms to call for it. The lungs showed no abnormality, but the heart gave a systolic murmur over the point of maximum impulse, though there was no displacement of the apex to the left. The man had originally been referred to the care of Dr. Stanley Stillman, and it was with him that I saw the case. We both considered the condition to be one either of cancer of the liver or syphilis of the liver; with the probabilities in favor of the latter, because of the good nutrition of the patient, the absence of pain and of the usual symptoms accompanying malignant disease. It was therefore decided to put the man upon iodide of potassium in ascending doses, at least as a therapeutic test.

During the days that followed the patient's heart rate was persistently above normal, ranging from 90 to 110, and at times running as high as 120 in the evening. The temperature was elevated each afternoon, as high as 100° or 101° F., though it was normal each morning. The iodide of potassum was gradually increased until 60 grains were taken three times a day. The drug was well tolerated but had absolutely no effect upon the size of the liver. On the contrary, the man's general condition steadily grew worse. He developed edema of the feet and ankles, gradually increasing until it involved the legs, thighs and the genitalia, finally becoming so excessive as to constitute the chief cause of complaint. In fact, aside from the distress caused by the swollen limbs, the patient had no complaint to make, except of an occasional pain in the abdomen, which he attributed to flatulence. He had a good appetite, did not lose in weight, had regular and well digested stools, never vomited his food, and during most of his illness was able to be up and about in the garden adjoining the hospital. He gradually developed an increasing amount of fluid in the abdomen, which interfered with his respiration and disturbed his sleep at night, so that at last he could not rest except in a sitting posture.

As his condition thus steadily grew worse, the conclusion was reached by Dr. Stillman and myself that the condition of the liver must be malignant; and it was decided to subject the patient to an exploratory operation, with the object of securing one of the nodular masses from the liver for microscopical examination. Exploratory operation was done on Oct. 20, 1904. A large amount of fluid was evacuated and the liver was found studded with nodules averaging the size of a walnut. One of these nodules was excised and submitted to Dr. William Ophüls for examination. His report upon the tissue was as follows: "The tumor consists of a thin framework of fibrous tissue with large, comparatively regular, round and oval spaces that are filled with very large polygonal epithelial cells, with large round or oval nuclei. The cells show many mitoses. There are extensive areas of fatty degeneration and necrosis in the center of the epithelial masses. In some places there are small cylindrical lumina filled with hyaline material. The liver tissue near the tumor shows a marked compression and cyanotic atrophy.

Diagnosis.—"Carcinoma of the liver, perhaps primary, but probably metastatic, but not from the gastro-intestinal tract." The patient did not rally after the operation; his temperature gradually ran up, and he died on the evening of Oct. 23, rather suddenly, with no preceding symptoms except slight cough and difficulty in breathing.

An autopsy was made on Oct. 25 by Dr.

Ophils. The liver showed on its anterior surface a large number of light grayish red and grayish white projecting nodules, varying in size from those just visible to some the size of a walnut and larger. The liver extended 15 cm. below the costal margin in the mammary line, and measured 40 by 35 by 13 centimeters. Tumor nodules similar to those projecting from the surface were found scattered about through the organ. The stomach was found slightly dilated. At its fundus, about in the middle between the cardiac orifice and the pylorus, at the greater curvature, there was found a circular ulcer about 5½ cm. in diameter, with elevated margins; the margin and the bottom of the ulcer were infiltrated with grayish white hard tumor masses. In the middle of the ulcer the stomach wall was perforated, the perforation measuring about one centimeter in diameter, and closed by a tumor mass in the ligamentum gastro-colicum. In the tail of the pancreas was found a tumor mass about the size of a walnut; and a considerable number of lymph glands in the upper retroperitoneal space were enlarged and infiltrated with tumor. Microscopical examination of the tissues showed that the process in the pancreas, lymph glands, fundus of the stomach and liver was carcinomatous. The other organs of the body showed no evidence of malignant disease. The direct cause of death was edema of the lungs with extensive collapse.

This case certainly possessed features that entitle it to be called unusual. In the first place, the common symptoms of cancer of the stomach were all lacking. The patient had a good appetite, ate heartily, digested his food well, had no nausea or vomiting, no pain in the stomach after food, no loss of weight and no cachexia. In fact, there was not one symptom present such as we are accustomed to consider diagnostic of cancer of the stomach. In the second place, while it was recognized that the liver was the site of a large tumor found during life, and while the conclusion was finally reached that this tumor of the liver was due to malignant disease, still there seemed no reason to conclude that the disease in the liver was secondary to disease in the stomach. Even at the exploratory operation, no gastric tumor was found. It appears remarkable that from so small a neoplasm as was finally found in the stomach at autopsy, such an enormous metastasis could have occurred in the liver. The situation of the new growth, at the fundus, was probably responsible both for the lack of gastric symptoms and for the preservation of nutrition. No test meal was ever given, and the criticism may perhaps justly be made that this ought not to have been omitted. The reason for its omission was the lack of symptoms to suggest it. Even if it had been made, it is questionable whether the analysis would have been characteristic, owing to the situation of the new growth; and in view of the revelations made by the autopsy, it was perhaps as well that the stomach tube was not used, for the ulceration caused by the cancer had perforated the stomach, and the tube might have done serious damage. The case can only be classed as belonging to that clinical variety of gastric cancer known as the latent.

In his monograph on "Cancer and Tumors of the Stomach," Fenwick has the very pertinent passage: "It is a common clinical observation that a rapid involvement of the liver usually masks the symptoms of the primary growth in the stomach, which is often found after death to be quite inconsiderable in size. In the absence of a necropsy, the patient is usually supposed to have died from primary cancer of the liver. The frequency with which this mistake is made is indicated by the fact that nearly one-third of all cases which are diagnosed as cancer of the liver are found after death to present a primary growth in the stomach."

Case II.—A man, aged thirty-seven years, a rancher by occupation, was sent to Lane Hospital from the country on Oct. 30, 1904. He was referred to the care of Dr. Emmet Rixford by his physician in the country, and I saw the case in consultation with Dr. Rixford. The history obtained was as follows: The man had never had any serious illness previous to the present one, and never before in his life had been ill enough to go to bed. In February, 1904, he began to feel weak and tired. At the same time it was noted that he had grown paler and had lost in weight. Since then all these symptoms had persisted and increased. At the time of the examination his principal complaint was of pain in the region of the spleen and of a lump which he had discovered there. His appetite was fair, but not good. His food distressed him a little just after eating, but he never vomited. The bowels were not constipated. He had been told in the country that he had malaria with enlargement of the spleen.

The physical examination showed that the patient was decidedly pale and somewhat sallow. He was moderately emaciated. The mucous membranes, as well as the skin, showed marked anemia. In the abdomen there was visible a mass on the left side, extending as low as the level of the navel. On palpation, this mass was found to have a sharp lower edge, like that of an enlarged spleen. On percussion, dulness was found over this mass continuous with the splenic dulness at the lower portion of the thorax, the vertical measurement of dulness in the anterior axillary line being 15 cm. The mass did not extend to the right of the median line. It was quite tender on palpation, and the patient would not permit deep manipulation to be made. The lower margin of the liver was palpable below the border of the ribs, and its total area of dulness in the mammary line was 10 cm. No other abnormality was found throughout the abdomen. The blood examination, made Nov. 3, showed the hemoglobin to be 53 per cent.; the red blood corpuscles 3,700,000 and the white corpuscles 18,500. A few poikilocytes were seen, but no

megalocytes and no nucleated reds. The differential count of white corpuscles showed 83 per cent. of polymorphonuclears, 12 per cent. lymphocytes and 5 per cent. large mononuclears. The case was looked upon as one of secondary anemia, probably due to chronic malaria, as the patient had long lived in a malarious section of the San Joaquin valley; and the enlargement, apparently of the spleen, seemed to give further evidence of the correctness of this diagnosis. The patient was put upon liberal diet, a mixture of iron, arsenic and strychnine, and was instructed to get out into the garden adjoining the hospital as many hours of the day as possible.

During the days that followed, the patient was under close observation. He ate well and never vomited his food, but complained frequently of pain in his left side in the region of the tumor. As this pain was his chief source of annoyance, and as good results had been obtained from the X-ray in other cases of splenic enlargement associated with pain, it was decided to subject this patient also to daily treatment with the X-ray over the supposed enlargement of the spleen. Until Nov. 7 his temperature remained practically normal, ranging from 98° F. in the morning to 99° F. in the evening; but after this date there was noted each day a slight elevation of temperature in the evening, reaching 100° or 100½° F., while the morning temperature remained normal. The pulse rate ranged continuously between 80 and 100, with an average of 90. In spite of treatment, the patient continued to complain of pain in his side, which was at times severe enough to interfere with his sleep at night. He also complained at times of cramps in his bowels and of distention of the abdomen with gas. Gradually also his appetite failed, and he could not be persuaded to take nourishment. A second blood examination, made Nov. 11, showed 52 per cent. of hemoglobin, 3,500,000 red corpuscles and 11,500 white corpuscles; poikilocytosis was again noted, and uneven staining of the red cells; the differential count showed 86 per cent. polymorphonuclears, 11 per cent. lymphocytes and three per cent. large mononuclears. A third blood examination, made on Nov. 18, showed the hemoglobin to be but 44 per cent., the red corpuscles 3,350,000 and the white corpuscles 12,000; the differential count remained practically the same as the week before. From these blood examinations, all of which were made for me by Dr. H. R. Oliver, it became evident that in spite of treatment directed to building up the blood the anemia was, on the contrary, steadily growing worse. These counts also showed another very suggestive feature, in the persistent increase in the number of white cells, with a disproportionate number of polymorphonuclears. This peculiarity in the count gave rise to the suspicion that the man might have an abscess in the spleen as a cause of his anemia; and to settle this point, if possible, a puncture was made directly into the tumor on Nov. 15, but the aspirating needle found nothing except a little dark blood.

As the patient's condition continued to grow worse, as manifested clinically by marked anemia, progressive weakness, with dropsy of the feet and lower limbs, persistence of pain in the side, inability to sleep at night, and gradual increase in the pulse rate, it was decided, after conference with Dr. Rixford, that an exploratory operation should be made, to permit a direct investigation of the mass in the left side. Such operation was performed on Nov. 22. On exposure of the tumor by an incision directly over it, it was found to be *not* the spleen, but an enormous carcinoma of the splenic end of the stomach, adherent to the anterior abdominal wall. In an attempt to free it from the abdominal wall an opening was made into a large cavity filled with necrotic material, mixed with undigested and decayed food. The cavity held probably one quart or more. It was evacuated with great difficulty. There was found an opening from this cavity into the stomach large enough to admit the thumb. A portion of the tumor was excised for microscopical examination, the walls of the cavity were stitched to the abdominal wall about the incision, a drainage tube was passed into the cavity and the abdominal wound then closed. Following the operation, the patient could be fed only by rectum, and gradually grew weaker until his death, on Nov. 28.

The portion of the tissue removed at the operation was submitted to Dr. Ophüls for examination, and his report showed it to be a typical adenocarcinoma. An autopsy was made by Dr. Ophüls on Nov. 29. At the site of the stomach there was found a large nodular tumor mass about the size of two fists, with extensive gangrene and suppuration on its anterior surface. In the interior of the stomach a fairly normal mucous membrane was seen over a small part of the cardiac orifice, the pylorus and some of the lesser curvature; but the rest of the stomach wall was very much thickened and infiltrated with hard, nodular tumor masses that showed diffuse gangrenous ulcers on their inner surface. The anterior wall of the stomach showed a large perforation. In the posterior part of the right lobe of the liver there was found an abscess cavity, 4½ cm. in diameter, filled with thick green pus. From this main abscess cavity a second smaller one opened; and a little more posteriorly and on one side of the abscess, there were many small metastatic foci of pus. The pancreas presented a diffuse induration and irregular infiltration with tumor nodules in the middle and in the tail. There was marked enlargement of the retroperitoneal lymph glands but no visible tumor was found in them. Microscopical examination showed the process in the stomach, liver and pancreas to be adenocarcinoma.

In this case as in the first, there were peculiarities in the clinical history and physical findings that made the diagnosis of gastric cancer unsuspected. Malignant disease was finally con-

sidered a probability, before the exploratory operation was done; but the stomach was not thought of as the likely site. The man's loss of weight, anemia and cachexia all spoke definitely for malignancy, while the abdominal tumor, whatever its origin, gave further basis for this conclusion. But there was never any vomiting, for days the appetite was reasonably good, a large amount of food, both liquid and solid, was taken and retained, and so the stomach escaped suspicion. On the other hand the tumor mass was so large and so fixed, its surface was so tender to manipulation and its site and contour indicated so plainly a splenic origin, that for a long time no other condition than enlarged spleen could be considered possible; and this in spite of the fact that it was examined almost daily for two or three weeks and every effort made to identify it. The chief point against its being enlarged spleen was the fact that it did not descend on deep inspiration. At last both Dr. Rixford and myself became convinced that the mass was in reality a malignant growth, and this conviction was what prompted the exploratory incision; though it must be confessed that we were not prepared for what was actually found. In this case also no test meal was ever given, simply because no indication for it seemed to exist. If it had been given, probably the analysis would have offered a clue as to the presence of gastric cancer; and in the retrospect of the case I regret that this investigation was omitted. Possibly, however, the test meal might have suffered the fate of so much of his food regularly taken and have escaped into the abscess cavity adjoining the stomach, with which there was a free communication through the anterior wall. This case must be classed as one of perigastric abscess complicating gastric cancer; and the mass that we found on physical examination and which we spent so much time in endeavoring to identify, was in reality a large abscess just beneath the abdominal wall. This complication, although an unusual one, is not especially rare, for it is estimated by Fenwick and by other authorities to occur in from three to five per cent. of all cases of gastric cancer.

I wish to repeat, in conclusion, what I said at the outset: that such unusual cases as these described seem to me to have especial value for the seeker after truth in our profession; because they convince him he does not yet know all that he might know, they make him hesitate another time when he is inclined to be absolutely sure, and thus they teach him not only humility in his own work but also charity for the work of others.

Immunization by Means of Milk.—The question of whether it is possible to immunize a child by means of milk containing antibodies, has been experimentally investigated by S. Salge (*Jahrb f. Kinderheilk.*, March 1, 1905). He finds that if one animal be fed on milk from another species containing antitoxic or bactericidal substances, these substances will not appear in the tissues or blood of the former animal.

THE PRESENT CLINICAL AND BACTERIOLOGICAL STATUS OF VINCENT'S ANGINA.*

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In view of the practical importance of the conditon now commonly known as Vincent's angina, it seems worth while to report some recent work of mine on the subject and sum up the clinical and bacteriological facts of recent literature.

Clinical History.—The disease, from the clinical point of view, may be defined as a localized acute or subacute inflammation, usually ulcerative, less often membranous, of the mouth and fauces, in which, below the contaminated surface of the diseased tissue certain peculiar bacilli and *Spirochætæ*—to be described later—are found in virtually pure culture. The etiological nexus between the ulcer and the germs is not yet scientifically established and cannot be till pure cultures of the bacteria have been successfully inoculated; but every one who has had opportunity to study the germs and the ulcer together has become reasonably convinced, in the light of similar pathological processes elsewhere, that the relation between the two is causal.

The history of the affection is briefly as follows: The bacilli and spirilla were apparently known already to Miller (Plaut[20]) in the early eighties, but only as saprophytes in the mouth. Babès in 1893[21] appears to have described and figured the bacilli and spirilla as constituents of pus from the gums in scurvy. In 1894 H. C. Plaut (*loc. cit.*), of Leipzig, described several cases of fetid membranous stomatitis and tonsillitis, in which spirilla, and a spindle-shaped bacillus (called by him "Miller's bacillus," were present in the exudate. This account attracted no notice. In 1896, H. Vincent, now of Paris,[22] described and figured the same germ-combination, or a highly similar one, in certain cases of hospital gangrene seen in Africa. In 1898 Vincent and Bernheim, independently and nearly at the same time, reported the same germs found in pure growth in tonsil-ulcers of a peculiar appearance. Vincent's accounts now finally gained the attention of the medical world, and many subsequent laborious and exhaustive reports on the same topic from his pen have finally fixed his name to the affection as a convenient and now generally accepted designation.

Synonyms are numerous. Plaut'sche angina, ulceromembranous angina, ulceromembranous stomatitis, angina diphtheroides, "Baziflen-spirillen-angina," and others have been proposed. Changes have also been rung upon Vincent's own name, and he has been called "Vincenti," "St. Vincent," etc., by the uninformed. Dr. R. J. Carlisle informs me that the term Vincent's angina has been adopted as the official designation of the dis-

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ease at Bellevue Hospital, and in spite of the seeming injustice worked to Plaut, the earliest observer, the present name seems destined to be permanent.

The literature of Vincent's angina is now enormous. In this article no attempt has been made to list any but the most important papers. The lists of Baron,[15] of Gross[19] and of Vincent[22 23] taken together with mine, make an essentially complete bibliography to date.

As to geographical distribution and frequency the disease may be called relatively rare, both in Europe and America; but the statement in the last edition (1904) of Simon's Clinical Diagnosis[1] that the only cases at that time reported in this country were those of E. Mayer[5] and J. W. Fisher[6] is quite misleading as to the actual occurrence of the disease. During the last four years the condition has been repeatedly noted in all the large clinics in New York. Sobel and Herrman[2] gave an excellent account of 12 cases observed in the summer and autumn of 1901 at the Good Samaritan Dispensary. I presented a case[3] at the Pediatric Section of the New York Academy in February, 1903. Dr. L. T. Royster[4] reported a case from Norfolk, Va., in August, 1903, with an admirable drawing of the germs. Dr. Paul L. Cocke wrote me (February, 1904) of a typical case in Birmingham, Ala. Dr. E. W. Perkins, of New York, showed me last year a specially interesting case in a young man of twenty-two years from Wilkesbarre, Pa. Besides this patient and another seen with Dr. G. A. Tuttle, of the Presbyterian Hospital, I have notes of 27 cases observed in the last three or four years at my own clinic, 25 by myself and two by my assistant, Dr. Francis Auersperg. The failure of many throat specialists and pediatrists to recognize it is probably due only to the fact that their attention has not been specially called to its clinical appearances.

Since Vincent's earlier papers many series of cases have been reported abroad—by Bruce[14] in London, Ivanow[16] in Moscow, and by German, French and Russian writers besides, in considerable numbers. There are now many hundreds of cases on record—enough to warrant some reliable clinical inductions. In further remarks I shall therefore not consume time with a detailed account of my own 29 cases, but mention them only when they enlarge or complete the clinical picture.

In respect of the *morbid anatomy*, the lesion is usually a circumscribed penetrating ulcer. It may, however, spread laterally as a false membrane; or the two processes may be combined. The first is the most usual condition. The site of election in an immense majority of the cases is the tonsil, usually one, rarely both. Out of 22 of my cases the right tonsil was involved 14 times, the left seven, and both once. A case of average severity is apt to begin in the upper angle of the tonsil as a grayish or greenish-gray necrosis quite similar to diphtheritic membrane, and from one-eighth to three-fourths of an inch in diameter. When this necrotic covering sloughs or is broken, a penetrating ulcer is discovered, often large enough to admit the end of the little finger and from one-half to three-fourths of an inch in depth. The margins of the hollow are steep and irregular and edges and bed are covered with pus and saliva. It bleeds easily from contact with food or the swab. As a rule it granulates up quite readily under treatment, and is usually healed in from one to three weeks. Sometimes the whole of a hypertrophic tonsil is involved in a destructive process which levels off the organ as though it had been removed by operation. The uvula also partly or entirely disappeared in the same way in two cases reported by B. Auché.[7] Smears gotten with a sterile swab from beneath the slough show pus cells, necrotic fragments, mucus, and a pure or nearly pure growth of the bacteria. The reaction of the exudate is usually slightly acid to litmus. Gross (*l. c.*) removed some infected tissue from the tonsil of a medical student and stained sections of the slough and the margin of the ulcer. The slough was fibrinous, infiltrated with pus-cells and permeated with bacilli and spirilla to the practical exclusion of all other germs.

The tonsil and fauces are usually red and edematous. The neck on the affected side is also slightly swollen, and one or two large lymph nodes are generally present—mostly one, rarely five or six. The node most affected was as large as a guinea egg in one of my cases and threatened suppuration, but rapidly declined in size during treatment of the tonsil ulcer.

Instead of the tonsil, the lips, or gums, or cheek, or tongue, or all of these combined may show a pseudomembrane or one or more ulcers in which the bacteria are present in large numbers. Almost any severe ulceration of the tonsils runs over a little on the gums and margins of the velum palati adjacent.

A concluding remark should be added here,—that bacteria of the same appearance quite regularly occur also in the pus of pyorrhea alveolaris (Riggs's disease) though the causal relation is here much more doubtful. This question will be touched upon again in discussion of the diagnosis.

Symptoms and Signs.—The majority of the cases occur in children. Of my 29 cases 13 (nearly half) were in children between three and six years of age; of the rest there were 9 cases between six and ten years, 3 between ten and twenty years, 4 between twenty and thirty-three years. Fourteen were male, 15 female.

Of 28 cases in which the season of the year was noted, I had 3 cases in July, 6 cases in September, 4 in October, 3 in November, 2 in January, the rest scattered. There is probably no special seasonal prevalence similar to that so familiar in the bronchitis and diarrhea of infants.

The introductory symptoms are usually those

of a subacute sore throat,—without a distinct chill, but with headache, malaise, and a mouth temperature ranging between 99° and 102.5° F., rarely higher. In ordinary cases the general symptoms subside in three or four days. Locally the patient complains of moderate pain and dysphagia. There may be slight salivation. The breath is foul, the other organs of the body are only sympathetically disturbed. In several of my patients a routine examination of the urine, made for the sake of thoroughness, was negative. The diazo reaction was also negative. In two cases differential counts of the leucocytes were negative.

The *signs* are simply those described under the morbid anatomy. The superficial similarity of Vincent's angina to tonsillar diphtheria in the earlier stages is so great that antitoxin has been frequently given or the case put into a diphtheria ward before the true nature of the condition was recognized.

The question of the *communicability* of the disease has excited much interest. So far as the present weight of experience goes, the question may be broadly answered in the affirmative. One of my patients, a married woman, thirty-three years old, came on September 21, 1903, with a typical sloughing Vincent ulcer on top of the right tonsil, giving a history of pain in the throat for five or six days previously. She said she had four children. She recovered promptly under treatment. On October 26 (five weeks later) she brought one of her children, a boy of five years, saying the child had been complaining of a sore throat for "over a week." The second patient had a precisely similar Vincent ulceration, in the upper angle of the same tonsil,—large numbers of bacilli and spirilla on the swab. Whether this second case was accidental or communicated I leave unanswered. This is the only instance in my own experience where contagion could be reasonably surmised. Other writers, however (Sobel, Auché, Baron and others) have reported several cases in one family, or among children in the same institution, or in soldiers crowded in barracks. The possibility of contagion must, therefore, be borne in mind.

Complications and Sequelæ.—Without including some rare clinical curiosities noted elsewhere in this article, there is now abundant evidence that Vincent's angina may complicate or be complicated by various other zymotic diseases of the mouth and pharynx, notably diphtheria, syphilis, scarlatina, scurvy and the ordinary coccus anginas. The bacilli and spirilla are also apt to appear in pure growth on tonsil-stumps after amputation (Vincent), and in varying quantities (Bruce and others) in aphthous ulcers of the buccal mucosa. I have already commented on their appearance in various inflammations of the gums. Vincent thinks them specially apt to appear at the time of the eruption of the permanent teeth.

The most important complication is diphtheria. The following (Dr. G. A. Tuttle's patient, mentioned before, is an average case: The patient was a female nurse, aged about thirty years, in the Presbyterian Hospital. When she sought advice she was found to have an ulceromembranous affection of the right tonsil, rather high fever, local pain, and severe large lymph nodes in the neck. Smears from the exudate showed a great number of bacilli and spirilla of typical appearance. Cultures on Löffler's serum also showed, the next day, an excellent growth of morphologically perfect diphtheria germs, and the case ran a course similar to mild diphtheria and was followed by a paralysis of some of the faucial muscles. Transplantations of the culture grew badly and died out before a guinea-pig could be inoculated.

Simonin,[15] Gallois and Courcoux,[26] Vincent and others have reported similar cases in which inoculated guinea-pigs died promptly. Vincent[8] is convinced that *Bacillus diphtheriæ*, in many other cases, is only saprophytic in the exudate of the ulcer of *Bacillus fusiformis*, and that the reverse condition is also quite frequent. Some of these questions of coincident infection can be solved when the Vincent germs are once successfully grown; some will of course remain conjectural.

As systematic complications, polymorphous erythemata, temporary albuminuria, suppurating axillary nodes and painful and swollen joints have been reported (see Ivanow[16] for literature and discussion), but are probably coincident streptococcus infections.

Duration.—The cases ordinarily heal as rapidly as any other ulcer of similar extent,—in from one to three weeks. They naturally last longer in patients with unhealthy mouths and decaying teeth. Lemoine reported a case lasting seventy days. M. Letulle[9] describes a sluggish case in a man of twenty-seven years, which lasted forty-eight days, in spite of daily energetic treatment with tincture of iodine. My longest case lasted two weeks and was treated with a mild alkaline gargle only. Certain cases in sickly and insane patients may be very refractory to treatment. The same thing, however, may be noted sometimes in so benign an affection as thrush. In old cases of Riggs's disease the germs persist for years in the pus from the gums.

The *prognosis* as to life is probably always good in the simple angina forms. One of the severest cases reported is that of Lansac[10] in a soldier aged twenty-two years. The man had chills, high fever (102.8° F.) and great pain, but recovered in twelve days.

Neither predisposition nor immunity appears to follow a single attack.

Diagnosis.—In two-thirds of the cases the clinical aspect of the disease is so characteristic that my assistants—once a good case has been shown them—have usually been able to recognize the condition without the microscope. A microscopical examination, however, is essen-

tial to avoid error, and may be made with the greatest ease. A sterile swab is first plunged into the depth of the slough; a smear is made at once, fixed, and while still warm, flooded with carbolic fuchsin. The fuchsin works better when fresh. Ten seconds' contact is enough, though the germs do not overstain. The slide (or cover) is then washed under the tap, dried and examined. The germs will be found in vast numbers, and almost uncontaminated.

A complicating diphtheria may occur, as I have stated. It is a rare accident unless, as sometimes happens from the general similarity of the two diseases in their early stages, the case is put into a diphtheria ward first and the microscopic work done afterward. Diphtheria must be diagnosed in the usual way with the serum culture.

To be perfectly sure, it is wise in all cases to examine *both* a fresh smear from the swab, *and* a culture. I might suggest this procedure as a desirable one for health department laboratories generally, as the two conditions are easily confounded.

Coincident syphilis cannot always be excluded, except by the course of the case. Such coincidences are rare, but several are already on record. A tonsil ulcer with Vincent's bacteria in pure culture in the exudate is usually, however, to be diagnosed as not syphilitic.

If a properly made swab shows no Vincent bacteria, the condition is not Vincent's angina, for the germs in this disease are present from the first and persist over the surface of the healed ulcer for some days after recovery is clinically complete, in this regard imitating the behavior of the *Bacillus diphtheriæ*.

In routine examination of sputum the Vincent spirilla and bacilli may be often noticed, coming sometimes from a Vincent's angina—more often from old pyorrhea of the gums.

It is interesting to note here, also, that such inflamed gums often bleed, and the blood has been mistaken for pulmonary and gastric hemorrhage. The bacilli and spirilla in the stain will clear up the case at once, as in a patient recently referred to me for diagnosis who had been under a very trying treatment for three months for ulcer of the stomach.

Treatment.—I have attempted no treatment of my own cases except a rational one. The patient is put to bed during the existence of fever and a gargle provided—sodium bicarbonate and boric acid, equal parts, in a sufficient quantity of hot water. Uncomplicated cases require nothing more. Treatment of complications will also be rational.

Vincent recommends tincture of iodine or Lugol's solution swabbed into the ulcer vigorously every day. Other French writers suggest solutions of methylene blue, also vigorously applied. One doubts whether some of the "refractory" cases reported by these writers may not be aggravated by so much mechanical violence to the tissues, though occasional cases certainly occur in which no treatment seems materially to modify the sluggish character of the process. Pyorrhea alveolaris may owe some of its incurableness to this fact.

Many other remedies have been suggested—hydrogen peroxide, silver nitrate, chromic acid, potassium chlorate, and various antiseptic gargles. In my experience they are needless.

Isolation should be practised to a reasonable degree, especially in asylums, prisons and barracks.

Bacteriology.—The germs now commonly called "Vincent's bacteria" and occurring clinically as described above, are morphologically two in number.

1. A spindle-shaped bacillus which Vincent named *Bacillus fusiformis*. This name is provisional only, inasmuch as other writers (Ghon and Sachs[24]) mention bacteria of the same name which are apparently different.

Vincent's bacillus is 7 to 14 μ. in length, 1 to 2 μ. in greatest thickness, and stains fairly with most aniline dyes, very brightly with carbolic fuchsin (Ziehl's solution). The best method of staining it has already been described. In swabs from the throat the germ is nearly always "beaded," *i.e.*, shows 2 to 5 unstained zones with stained zones between. It is usually straight, but may be curved, or even S-shaped. If curved or very short or very long or much beaded in a particular case on the first examination, it will preserve these marks throughout that case. The germ is easily identified, no other bacterium in the mouth being just like it. It decolorizes readily with 95 per cent. alcohol, and with mineral acids. The effect of the Gram stain is disputed, but is probably as a rule negative. The motility of the germ is also a moot-point. Baron[15] and others describe a sluggish motion in the "hanging drop" (presumably a drop of saliva), and Baron figures also a flagellum-stain, the germ showing in all 2 to 6 flagella, lateral or terminal, or both. He describes the flagellum-stains as exceedingly difficult and uncertain, whatever the method.

2. A spirillum, more properly a true "curl" or spirochæte—one-half or one-third as thick as the bacillus, staining much more lightly as a rule, and showing from two to five spiral turns, which may be "tight" or "loose." On the cover-glass the spirillum has usually a rectilinear axis, but may be doubled or twisted on itself. Its axial length is 15 to 25 μ. It is generally agreed to be motile, but stained flagella have not been mentioned so far in the literature. It is also beaded at times, but less often than the bacillus.

Both these germs, as I have remarked before, have been probably known for a long time as saprophytes in many apparently normal mouths, sharing this mark with the *Bacillus diphtheriæ*, *Micrococcus lanceolatus* and other pathogenic bacteria. The occurrence of the germs in decayed teeth, inflamed gums, and aphthous ulcers has also been noticed by many. Simonin men-

tions (15 with literature) that they have also been seen in the pus of an abscess of Highmore's antrum, in a perilaryngeal abscess, and in mucus from several cases of dysentery in man and one case in a dog. In one of the human cases Le Dantec[17] found spirilla only.

Cultural Experiments.—It is rather surprising that in view of the immense amount of ingenious research by many continental workers these germs still refuse to grow in pure culture. In some instances the organisms have been successfully carried, in a mixed growth, through a few transplantations, but they are rapidly overgrown by contaminating germs (mostly cocci) and soon disappear. Plating has been an absolute failure. Feeble contaminated growths have been secured in ascitic fluid by Carnot and Fournier[11]; in old arthritic fluids, in "bouillon Martin," and in a combination of pleuritic fluid and peptonized bouillon (especially the spirilla) by Vincent[12]; in sterile saliva by Uffenheimer.[13] Vincent notes that the cultures invariably exhale a peculiar fetid smell. Inoculations of the ordinary mixed cultures (Vincent) into animals have been followed by lesions in which the germs, still mixed, could be recovered. Uffenheimer (*loc. cit.*) inoculated the throat of one or two medical students with infected swabs. The results were negative.

For over two years past I have experimented with my cases, as they came to hand, on most of the known laboratory media—generally without success. I have tried the germs also on sterile placenta, on freshly excised tonsils, and on sterile disks of human liver gotten at autopsy—without success. Broth made in the ordinary way from freshly excised tonsils of children, and then peptonized, gave in one case a very fine and encouraging result, but since that time only a feeble contaminated growth, rarely surviving the fourth transplantation. It gives the characteristic fetid smell.

In my hands all plate media, however modified, have failed.

The germs have been noticed by Uffenheimer (*loc. cit.*), myself and others, growing remarkably well for a short time in the condensation drops on the surface of certain solid media (like Hiss's typhoid medium), but soon dying. The culture-tube bacillus, as I have seen it, is slender and not beaded; it may be found in characteristic threads consisting of three, four or even five members. The spirillum shows no special grouping in tube-cultures. Good swabs from the throat show a perfectly characteristic colony of bacilli which has been well presented by Gross (*loc. cit.*) in a colored plate.

The most recent cultural experiments are those of D. Vesprémi.[25] The case was one of purulent periostitis of the right upper jaw in a man of fifty-three years. At the autopsy a phlegmon of the temporal muscle, purulent periostitis of the cranial base, purulent meningitis and secondary gangrenous abscesses of the lungs were found, accompanied by a frightful odor. In the pus immense numbers of the bacilli and spirilla were found, along with "bacteria in threads" and cocci. The pus was inoculated into a rabbit, which died with similar lesions—gangrenous abscesses. Cultures from the rabbit-lesion upon "liquor pericardii + bouillon, rabbit serum + liq. pericardii, rabbit-serum + bouillon, etc.," were found to grow actively in from twenty-four to forty-eight hours, with flocculent granules upon the sides and bottoms of the test-tubes. The granules when spread and stained showed at first many fusiform bacilli, afterward some "thread bacteria" and spirilla. The cultures could be kept going indefinitely, and gangrenous abscesses could be invariably produced in a long series of rabbits from injection of the mixed cultures.

This report illustrates a fact soon recognized by all who attack the above problem, namely, that the different strains of the germ vary enormously in vitality, sometimes growing well on media in which germs inoculated from a second or third case promptly die.

From present appearances we may hope that the problem will soon be completely solved.

A final remark may be added. The peculiar association of two such dissimilar germs as a pathogenic entity has excited much discussion. The French writers accept the condition as a peculiar "symbiosis"; others have suggested that the two are morphologic variants of a single germ. Until successful pure cultures have been made, the question must be left unanswered. Clinically the spirillum (or a similar spirillum) has been noticed for a long while past without the bacillus in the hollows of carious teeth. Vincent has also observed the bacillus alone at times in superficial membranes on the tonsil. The characteristic clinical picture, however, appears only when both germs are present.

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ON WIDAL REACTION.

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Since Widal first published his method of diagnosing typhoid fever several modifications have been brought forward, not only with the object of increasing its reliability, but also to simplify the procedure and increase its practical application. Wyatt Johnston, taking up Widal's assertion that the blood of typhoid patients did not lose its agglutinating properties when dried, used extensively dried blood to perform the reaction. The method was to dissolve the blood with water and then mix a loopful of the solution with an equal amount of typhoid culture. The claims of Wyatt Johnston, in regard to the practical applicability and results of its method have been amply substantiated by all those who have used it. A short time after Johnston's paper was published I used the dry blood method in the examination of 35 cases of clinically diagnosed typhoid fever, and obtained a positive reaction in 33. Though for scientific investigation and very doubtful cases it is advisable to use the serum method, which permits an exact dilution, in routine work the dry blood method when carefully performed gives very accurate results. By repeated trials it is possible to measure more or less the degree of dilution from the color of the mixture. At the laboratory we employ a standard color which represents approximately a dilution of 1 to 20. A loopful of this mixture mixed with a similar one of typhoid culture makes the required solution of 1/40.

Not much attention was at first paid to the culture, but later on it was observed that some cultures had a tendency to clump spontaneously and form a thin film on top of the bouillon. The reaction of the bouillon has a good deal to do with these peculiarities. If the reaction is alkaline the culture will often show film formation and spontaneous clumping. An exactly neutral bouillon deprived of sugar is the best adapted. The age of the culture also plays a very important part in the proper performance of the reaction; cultures from twelve to eighteen hours old, at the incubator temperature of 37° C., are generally used. A better indication than the age of the culture is the degree of turbidity of the bouillon. Nicolle and Catouillard recommend that the culture should have a degree of turbidity equal to that of a mixture of 100 c.c. solution of bicarbonate of potassium 1/100 and five drops of a 1/100 solution of neutral acetate of lead. If the turbidity of the culture is deeper, sterile water should be added until the proper depth is obtained.

The daily transplanting and the proper growth of the cultures requires a great deal of attention, which can be obtained only in a well equipped laboratory. To place the performance of this test within the reach of many practitioners, the general use of the dead cultures of the *Bacillus typhosus* has been suggested lately. The cultures are treated with chloroform, ether or formol; the last is generally preferred. One drop of formol for each 2 c.c. of culture is the proportion recommended by Nicolle. Rüdiger uses 1 c.c. of formol for each 100 c.c. of culture. Some contradictory claims have been made in regard to the comparative value of the dead and the living cultures in the performance of the test. Nicolle and Halipre claim that a young living culture is the most sensitive to the action of the agglutinins, but other observers affirm that a dead culture, properly prepared, is just as sensitive. In view of these contradictory assertions, I determined to test every specimen of suspected typhoid which came to the laboratory, with both living and dead culture. As the majority of the specimens of typhoid which come to the laboratory are of dried blood, I could also study whether dead cultures gave equally good results with the dried blood, as it is claimed with the serum. Our standard of dilution for both serum and blood is 1 to 40, but a few experimental tests were made with a higher dilution. So far, 300 specimens have been tested. From a careful comparison of the results with the living and dead cultures, I have come to the following conclusions:

1. Living and dead cultures are about equally sensitive to the action of the agglutinins of typhoid fever, though in dead culture the reaction may require a longer time to take effect, and it is therefore necessary to keep the specimen under observation for two hours. In some cases the reaction is quicker with the dead than with the living cultures.

2. The dried blood method is equally effective with dead as with living cultures.

3. The reaction, when it takes place, is more characteristic with dead cultures than with living cultures. There are no pseudo-reactions with dead cultures.

4. Dead cultures do not seem to lose their sensibility to the agglutinins of typhoid fever for a long time. I have now in use a dead culture which was prepared six months ago, and it reacts just as typically as when first used.

MEDICAL PROGRESS.

MEDICINE.

The Cytodiagnosis of Pleural and Cerebrospinal Fluids.—On account of the limited value in diagnosis from an examination of the various pathological effusions formed in the body, the different laboratory methods available give but little help. The clinical data obtained in the study of cases with pleural effusions is only of limited diagnostic value. The same may be said of bacteriological examinations in many cases, as many of the effusions are sterile, particularly those of tuberculous origin. It is with this in view that E. Turton (*The Practitioner*, April, 1905) calls attention to the valuable aid in diagnosis that is rendered by a careful study of the cells present in various pathological effusions. The author gives very carefully (1) the meth-

ods of performing cytological examinations; (2) the varieties of cells found in pathological effusions; and (3) the cytology of pleural effusions. As a result of a close study of the various cells found in the different pathological fluids, the author draws the following conclusions: (1) In pleural effusions the cytological formulæ stated by Widal and Ravant hold good in the great majority of cases. An excess of lymphocytes indicates generally a tuberculous origin; a preponderance of polymorphonuclear cells an inflammatory process due, for instance, to a pneumococcal or streptococcal infection. A passive or mechanical transudation contains, as a rule, a large number of endothelial cells. It must be borne in mind, however, that especially in the earlier stages of tuberculous effusions, departures from the rule frequently occur. (2) The cerebrospinal fluid in meningitis of tuberculous origin usually shows lymphocytosis, whilst in inflammatory states caused by the meningococcus of Weichselbaum, the pneumococcus or streptococcus, and in posterior basic-meningitis it is characterized by an excess of polymorphonuclear cells. Many discordant results, however, due it may be in some cases to a secondary infection, have been recorded. Cytological examinations may thus help us not only in differentiating the various kinds of meningitis, but also in distinguishing meningitis from such conditions as the cerebral irritation of typhoid fever and other infectious diseases, from tetanus, and hysterical pseudomeningitis, in which there is no increase of cells in the cerebrospinal fluid. (3) The presence of lymphocytosis is almost constant in general paralysis of the insane, in tabes dorsalis, in syphilitic diseases generally of the central nervous system, and may be useful for diagnostic purposes in distinguishing these diseases from other affection more or less resembling them. General paralysis and tabes promise to be diagnosed even in early stages by the use of cytological examinations, as shown by Maillard. The importance of early antisyphilitic treatment in these diseases is generally acknowledged, and cytology would seem to afford the means of making an early diagnosis. The author contends that in no case should a diagnosis be based wholly on the result of the cytological examination, but this should form merely a valuable link in the chain of clinical evidence. As in ordinary blood examination, he emphasizes the great importance of making more than one cytological count of the pleural or cerebrospinal fluid whenever this is possible.

A Study of the Bone-Marrow in Typhoid Fever and other Acute Infections.—In a comparative study of the bone-marrow in typhoid fever and other acute infections, combined with a study of the leucocytes of the circulating blood in these conditions Longcope (*Bull. Ayer Clin. Lab. Penn. Hosp.*, January, 1905) shows that there is a close relationship existing between certain cells of the hemopoietic organs and the cells of the circulating blood in typhoid fever which differ essentially from the condition found in acute infectious diseases. His article is based upon the study of bone-marrow in twenty-six cases of typhoid fever, and for comparison in fifteen cases of pneumonia, four of peritonitis, two of miliary tuberculosis, one of acute cerebrospinal meningitis, one of retroperitoneal abscess, one of puerperal septicemia, four of chronic nephritis, one of carcinoma of the gall-bladder, and of two normal individuals. Leucocyte counts and differential counts were made in all cases. The author arrived at the following conclusions: The bone-marrow from twenty-six cases of typhoid fever showed certain definite and constant histological lesions. These lesions resembled very closely the changes in the mesenteric lymph nodes, lymphoid follicles of the intestine and spleen. The alterations were characterized by the presence of many lymphoid cells, large phagocytes, and foci of necrosis. There was more or less hyperplasia of the blood-forming cells. In many of the marrows from cases dying of perforation and general peritonitis there were besides the disseminated foci of necrosis, diffuse degenerative changes in blood-forming cells, accompanied with marked oedema and congestion of the tissues. Differential counts of the bone-marrow cells from ten cases showed a marked relative increase of the lymphoid cells over the granular myelocytes. The bone-marrow from fifteen cases of acute lobar pneumonia, four cases of peritonitis, one of acute cerebrospinal meningitis, one of retroperitoneal abscess, and one of puerperal septicemia, all showed the same variety of alterations, differing in many important points from cases of typhoid fever. There was more or less extensive hyperplasia of the blood-forming cells, with a marked relative increase of the granular myelocytes over the lymphoid cells. In the cases of peritonitis due to causes other than typhoid perforation, diffuse degenerative changes were absent. In no cases of this group were foci of necrosis found. Large phagocytic cells were exceedingly rare or entirely absent. The bone-marrow from four cases of chronic nephritis and one of carcinoma of the gall-bladder showed no distinctive pathological alterations, and seemed to resemble very closely the marrow from two normal individuals. It is possible that the lesions in the bone-marrow in typhoid fever are in some way nearly related to and perhaps responsible for the hypoleucocytosis characteristic of the disease. It is also very probable that the lesions in the bone-marrow in acute lobar pneumonia, peritonitis, etc., are in close association with the hyperleucocytosis so often seen in these conditions.

The Relation between Congenital Malformation of the Heart and Acute Endocarditis.—The view that acute endocarditis is often observed as being due to congenital malformation of heart is supported by the findings of Robinson (*Bull. Ayer Clin. Lab. Penn. Hosp.*, January, 1905) observed in two cases. He reviews the literature on the subject and finds that there are seventeen fully reported cases of acute endocarditis complicating extensive congenital malformations of the heart. These, however, he concludes represent but a small proportion of such cases observed.

His two cases are of interest on account of the association of extensive acute endocarditis with congenital malformation. In one case the size and extent of the vegetations were remarkable, which were attached to the aortic valve almost blocking the opening in the septum ventriculorum. In both cases there appeared to be an attempt to close the opening in the first by vegetations, and in the second by the posterior leaflet of the tricuspid valve. The opening in both cases occurred in the membranous portion of the septum ventriculorum. The more common malformations reported in the 19 cases (17 from the literature and 2 of the author) were open septum ventriculorum 11 cases, 6 of which were combined with obstruction in flow of blood through the pulmonary orifice; 8 cases of patent foramen ovale, 3 of which were combined with pulmonary obstruction; stenosis of the right conus arteriosus, 6; pulmonary stenosis, 5; and patent ductus arteriosus in 3 cases. The seat of the vegetations were the pulmonary valves, 11 cases; tricuspid valve, 8 cases; on the wall of the right conus arteriosus or pulmonary artery, 4 cases each; on the mitral or aortic valves, 3 cases each; on the abnormal openings between the heart cavities, 2 cases; and 1 case each on the auricular and ventricular wall. The author draws the following conclusions: (1) Congenital malformations of the heart are generally con-

sidered to predispose to acute endocarditis. (2) The fact that the combination of acute endocarditis and congenital cardiac malformation is rare is because comparatively few cases of congenital cardiac malformation reach the age at which acute endocarditis is most common. Most cases, showing both pathological lesions, die in young adult life. (3) The form of extensive congenital cardiac malformation which is most frequently attacked by acute endocarditis is that in which life is most prolonged, namely, obstruction to the pulmonary outflow with openings between the auricles or ventricles. (4) The acute endocarditis more frequently attacks the right side of the heart in cases of congenital cardiac malformation.

Chronic Eczema and Senile Degeneration.—Medwin Leale (*Am. Med.*, April 15, 1905) says this skin lesion, having its initial onset during old age, can usually be attributed to the circulatory changes, and their consequent degenerations. He lays great stress on making a careful general physical examination, determining accurately the condition of the heart and blood vessels, the lungs, kidneys, etc., and meeting any pathological condition by its appropriate treatment. The circulation should be properly maintained and the emunctory carefully watched. Water should be taken frequently, but in small quantities at a time, to secure rather a constant flushing than an overdistention of the heart and blood vessels. Moderate exercise is advantageous. The local treatment should have for its object stimulating and thereby improving the peripheral circulation of the blood and lymphatics. Carefuly regulated and systematic rubbing and friction best meet these conditions. Using the greatest amount of surface of the palms of the hands and fingers as can be well adapted to the affected surface, he adopts a combination of effleurage and massage a friction, the strokes of the hands following as nearly as possible the course of the veins and lymphatics. For lubrication a fine quality of olive oil is used and with this for medication a pure, finely powdered zinc oxide, each application lasting from 20 to 40 minutes every night, preferably just before retiring to secure sleep. Where more stimulation is necessary a strong tincture of pix liquids is used. Every second night before the application the patient is given a bath at 94° F., using a pure olive oil soap. Under these methods of procedure, if carefully followed, one may expect in most cases within from two to eight weeks a more or less permanent cure. He cites an illustrative case.

Some Remarks on Physical Diagnosis: (1) Transmanual Auscultation. (2) Ulnar Palpation.—David Riesman (*Am. Med.*, April 22, 1905) says transmanual auscultation consists in auscultating through the hand placed over the heart, and can be used satisfactorily only with one of the newer binaural stethoscopes. Heart sounds and heart murmurs can be heard with surprising distinctness through the hand placed on the precordia. The method greatly facilitates the timing of a murmur, inasmuch as the palpation and the auscultation are done at the same time and place. It is not only possible to auscultate directly through the fingers and hand, but almost equally good results can be obtained by placing the finger, flexed at a right angle, on the apex beat, and then resting the stethoscope lightly on the finger. The principal advantage of transmanual auscultation will be found in differentiating presystolic from systolic murmurs. It is also of value in timing peculiar murmurs heard over the entire precordia, or perhaps the entire chest. Ulnar palpation is done with the ulnar side of the hand, and confines the examination to the individual interspaces. The ulnar side of the hand is laid in each interspace successively, while the patient counts "one, one, one;" "one, two, three;" or "ninety-nine," according to individual preference. The ulnar surface of either the hand or the little finger must be firmly placed in the interspace, the hand being held almost at a right angle with the patient's chest. It is best to stand a little to the side of the patient and use the same hand for both sides of the chest. The method gives accurate information and enables one to discover small shades of difference in the fremitus of contiguous interspaces and of corresponding areas on the two sides. It is of most value in the diagnosis of effusions, especially in determining the upper level of the exudate. It is practised most successfully on the front of the chest. On the back, by reason of the difficulty in locating the interspaces, it is not so satisfactory, but it may be employed even there. This method is not offered as a substitute for the one now in vogue, but as an addition to it. Both should always be employed.

THERAPEUTICS.

Treatment of Status Epilepticus.—The following are the most common causes of the status epilepticus, according to K. Alt (*Münch. med. Woch.*, March 28, 1905). Constipation, with absorption of toxic products from the intestinal canal, alcohol, morphine, sexual excesses or nervous irritation, extreme heat, particularly exposure to the rays of the sun, sudden withdrawal of the bromides, and the use of iodide. Exacerbation of the disease may also be observed after acute illness, during which the patients are usually free from convulsions. The first thing to do is to empty the bowels by means of a high enema and calomel. Frequently the patient will improve wonderfully after the decomposed contents of the intestines are voided. The bromides are generally ineffectual since their action is too slow, and the patients often no longer react to even large doses. Chloral-hydrate in two-gram doses, per rectum, is excellent where the pulse is strong. Other valuable drugs in the epileptic state are amylenhydrate and dormiol. The former has been recommended hypodermatically, but the irritation will often give rise to new attacks. With cardiac weakness, 10 to 15 drops of the tincture of strophanthus should be added to the clysmata. In very severe cases, the only remedy which will control the convulsions is chloroform which can be combined with oxygen. Theoretically, a bromoform-oxygen narcosis seems promising. Should the temperature be high, the patients may be placed into a cool bath, and in full-blooded individuals with acetonuria, venesection, followed by a saline infusion, is in place. An interesting observation of the author, is that acetonuria is common in the beginning status epilepticus of general paresis, but rare in genuine epilepsy.

The Use of Veronal in the Insane.—Some of the most troublesome cases of insomnia are encountered among the victims of insanity. The therapeutic application in this type of cases is awaited with interest. P. Sérieux and R. Mignot (*Arch. de Neur.*, Jan., 1905) made a careful study of the effect of veronal in twenty insane patients troubled with insomnia. This drug has a marked hypnotic action in the insomnia of melancholia and acute dementia, producing a long, continuous sleep which begins from one to two hours after administration. The best dosage is to begin with 0.3 gm. (5 grn.), and so increase the dose gradually without going beyond a gram. The action is more marked and more regular after this drug has been used for several days. Veronal does not lose its effect after having been used for a long time; in one of the patients it was administered daily for eight months without augmentation of

dose. In the cases of dementia there is noticed a lessening of the automatic agitation, and in the melancholics a decrease in the agitation during the day following the sleep induced by veronal. In general paralysis, with agitation or with hallucinations, the action of this agent is very feeble; the sleep produced is very irregular and its duration is not long. In none of the cases, even after prolonged administration of a gram of veronal, was malaise or vertigo observed. There were no changes in the pulse nor in the heart sounds, and aged persons and those having cardiac lesions tolerated the drug well. Albuminuria was not observed, even after prolonged use. Veronal was employed in twenty other cases, with not a single sign of intolerance.

Neuronal as Hypnotic.—Neuronal was first recommended as a result of systematic study of the relation between chemical constitution and hypnotic action. The experience of L. Bleibtreu (*Münch. med. Woch.*, April 11, 1905) with neuronal, was on the whole very favorable. In severe cases of insomnia, 0.5 to 1 grams of the drug usually induced a natural sleep. Even where long-continued, tolerance or bad after-effects were not observed. The restlessness due to cardiac disease, arteriosclerosis and hemiplegia was also favorably influenced, and even the tabes, neuralgia and other conditions accompanied by severe pain, were benefited. Owing to the presence of bromine in the molecule, the drug will probably also do good service in pertussis.

Treatment of Laryngeal Tuberculosis with Phenosalyl.—Despite the fact that phenosalyl is not very poisonous, it possesses almost the same bactericidal powers as sublimate. Since it has been highly recommended in laryngeal tuberculosis, M. W. Dempel (*Therap. Monatshft.*, April, 1905) has tried it in every case that came under his observation in the form of a 3 to 5 per cent. solution in glycerin, after thorough cocainization of the mucous membrane. Generally two to three applications a week are sufficient. The best effects were seen in shallow ulceration and erosions, where a cure was generally accomplished after 3 to 5 applications, no matter what the general health or the condition of the lungs. Deep ulcers require one to two months, and often do not heal at all. Moderate infiltrations generally demand prolonged treatment, but will finally yield, while extensive infiltrations, particularly those situated in the interarytenoid space are difficult to cure. Hoarseness and aphonia, if caused by erosions upon the true vocal cords will disappear rapidly, and the pain during swallowing is moderated. Phenosalyl contains the following ingredients: Carbolic, salicylic, benzoic and citric acids, glycerin and ethereal oils.

Stovaine as a Local Anesthetic.—Stovaine is a chlorhydrate of amylcine which was syntheticaly composed by Fourneau and employed by Reclus, Billon and others. In a preliminary communication in *Prak. Vrach.*, November 10, 1905, Voskressensky reports some 30 various operative cases in which this anesthetic was employed, including the opening of deep paraproctitis, the excision of a cancer of the lower lip, hydrocele, Bassini's operation for hernia, strumectomy, etc., the drug being used in one-half per cent., three quarters per cent. and one per cent. solution (in water), the total quantity used 0.12. He summarizes the results as follows: (1) Complete anesthesia was obtained in all the 30 cases. (2) There were no symptoms of poisoning in any of the cases, as evidenced by the pulse, respiration, reaction of the pupils, and the central nervous system. (3) The anesthesia ensues almost at once, so that the operation can begin immediately after the injection. (4) The effect lasts about twenty minutes, and it is distinctly circumscribed never extending beyond the infiltrated tissues. (5) The wounds do not bleed any more than at other operations, although stovaine is counted among the vasodilators. (6) Contrary to cocaine no hyperesthesia was ever observed after the effect of the drug had ceased. (7) The weaker solutions are as effective as the one per cent. solution.

PRESCRIPTION HINTS.

Chronic Bronchitis.—E. F. Ingals recommends the following to relieve the cough in chronic bronchitis when opiates are not contraindicated:

℞ Morph. sulph. .....gr. i
Ammon. carb. .....gr. xl
Syr. pruni virg. .....
Mist. glycyrrhizæ comp. } .....aa. ℥ iv

M. Sig. ℥ i in water to relieve the cough.

Or:

℞ Terpin. hydrat. .....gr. ii
Ext. cannab. indic. .....gr. 1/20
Codeinæ .....gr. 1/8
Ol. menth. pip. .....gr. 1/2
Sacch. alb. .....gr. iii

M. Ft. Capsulæ No. i.

Sig. One every four hours until cough is relieved.

Typhoid Fever.—Moore (*Practitioner, London*) recommends turpentine in typhoid fever, as it acts as a readily diffusible stimulant, intestinal antiseptic prevents metcorism and checks hemorrhage. He prescribes it in the following form:

℞ Spts. turpentine .....℥i
Spts. aetheris nitrosi.....℥ii
Spts. chloroformi .....℥ii
Emulsion olei amygdalæ dulcis....q.s. ad. ℥vi

M. Ft. mictura lege artis.

Sig. Tablespoonful at one dose as required by the symptoms. Shake well before using.

Coryza.—In the treatment of coryza Anders recommends the following treatment: A purge consisting of blue mass gr. v—(0.30) at night, followed in the morning by a Seidlitz powder. The early administration of a diaphoretic such as Dover's powder gr. x—(0.60) at night followed by a large dose of quinine (gr. xv—0.972) may abort the attack. If these measures fail the following tablet produces good results:

℞ Quininæ sulph. .....gr. iiss (0.16)
Extract belladonnæ (Fld.) .....♏iss (0.09)
Sodii salicyl. .....gr. xxx (2.0)
Campnoræ .....gr. iiss (0.16)

M. et. ft. tablet No. x.

Sig. One tablet every hour or two.

Local inhalations of the compound tincture of benzoin (℥ ii to a pint of hot water) for ten to fifteen minutes at a time, solutions of cocaine (2 to 4 per cent.), or the following used in an atomizer:

℞ Menthol .....gr. v (0.32)
Pinol .....♏x (0.32)
Benzoinal .....℥i (3.2.)

Treatment of Acute Coryza.—According to M. Weitlaner (*La Quin. Therap.*, 25 Avril, 1905), acute coryza may be successfully aborted by the following combination:

℞ Sod. salicylate 30.0
Pulv. doveri 3.0

Mix and divide into 20 powders. Give at first every three hours, later two or three times a day.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, MAY 27, 1905.

NATIONAL TUBERCULOSIS ASSOCIATION.

The annual meeting of the National Association for the Study and Prevention of Tuberculosis, held at Washington, D. C., during the past week (an abstract from the proceedings will be found in this week's Medical News, p. 1000) was not only an encouraging success in point of the numbers and distinction of members and guests in attendance, but also in the interest and practical character of its transactions, both from a scientific and sociological standpoint. Most of those who are earnestly concerned with tuberculosis in this country were present in the national capital, and the sessions, sectional and general, were so crowded as to test the capacity of the large meeting rooms of the new Willard Hotel. That this manifestation of interest was eminently justified will be amply evident from the variety and the importance of the subjects touched upon in the discussions.

The keynote of the opening general session, at which addresses were delivered by the President of the Association, Dr. Trudeau and the Vice-Presidents, Drs. Osler and Hermann M. Biggs, was that the most important need in the tuberculosis crusade is education—education of the people, but even more so, education of the medical profession, and especially of the medical students, so that the very early stages of the disease may be recognized. For this Prof. Osler pleaded for the treatment of some incipient cases in all medical college hospitals and for dispensaries and reception hospitals, where they may be available for teaching purposes. The present intense prejudice that is at once aroused whenever a proposal to erect an infectious disease hospital is made was shown by both Dr. Osler and Dr. Biggs to be entirely without justification in any real danger of the spread of disease. As a matter of fact, intelligent care for consumptives in a neighborhood always makes the mortality from tuberculosis less than it was before, because some of the training and discipline inculcated for patients so that they may not become sources of danger to others spreads even to those in the vicinity of the hospital.

The reports of the committees on the early diagnosis of tuberculosis and the effect of climate in its treatment evoked interesting discussion. It is agreed that there is no pathognomonic sign of the incipiency of pulmonary tuberculosis, but that the clinical picture must be taken in its entirety, and especially with reference to the individual's physical condition in every case. If in a person already under weight for height there is a rapid pulse, some slight rise of temperature in the afternoon, or after exertion, or at such times of physical stress as during menstruation, there must be always a suspicion of the presence of active tubercle bacilli, and if, in addition, there is a history of exposure to the contagion of the disease, with any loss of weight, then the patient must not be allowed to pass from observation until there has been an improvement in the condition. The universal agreement is that it is better to err on the side of overcarefulness for the patient's welfare than too great readiness to give a reassurance that may prove serious, because it leads to neglect of the early stage. Excellent diagnosticians of large experience did not hesitate to say, that where there was any ground for suspicion it was imprudent, if not indeed rash, to make a negative diagnosis on a single examination. This takes the physician down from his "sacred position of high priest of medicine, knowing everything at once and ready oracularly to declare it," as said the dean of New York diagnosticians; but it is better for the patient eventually that there should be repeated examinations and a frank confession of their necessity.

Among the experts in tuberculosis, especially among those from health resorts for the disease, there is practically unanimous agreement that tuberculin is of service in the early diagnosis of latent tuberculosis. While much encouraging work has been done with regard to agglutination methods in the diagnosis of incipient tuberculosis, it is conceded that as yet, if the method has any value, it is only for prognostic purposes. As regards vaccination and serum therapy, while progress in investigation is reported, none of the methods are ready as yet for use in human beings, and, in spite of one spectacular self-injection with human tubercle bacilli after supposed vaccination, discussed as having been performed in Belgium, it is extremely doubtful if any definite advance has yet been made, for the protective power conferred is probably only passing.

When Osler emphasized at the general session that patients, and especially young patients, should be promptly told that they were suffering from tuberculosis, his words were received with applause. No matter how much friends may urge the withholding of the truth, "lest it kill" the patient, it is considered better to put the true state of the case before the sufferer. In this matter there has been a complete change of medical opinion in recent years, and those having the largest experience with tuberculosis patients are the most emphatic as to the benefits likely to accrue from perfect candor and in the assurance that with due tact there is no danger of working serious harm.

Besides the discussions, a noteworthy feature of this meeting was the pathological display. The Phipps Institute, of Philadelphia, for the Study of Tuberculosis, had on exhibition a very striking set of pathological specimens, arranged to illustrate the phases of recent work. The Saranac Laboratory sent the specimens that formed the bases of the papers presented at the meeting, which added not a little to the interest of the work done. The Laboratory of the State Live Stock Sanitary Board of Pennsylvania placed, among other interesting specimens, on exhibition some results of the protective power of vaccination for tuberculosis in cattle, which show that, by somewhat different methods, as much is being accomplished here as Behring claims to have done in Germany. Of the immunity to the severe lesions of tuberculosis thus artificially produced there could be no doubt.

On the whole, this first annual meeting of the National Association for the Study and Prevention of Tuberculosis sets a high standard which it will be difficult to equal in the years to come, much less surpass. There can be no possible doubt in the minds of those who were in attendance, or who read its proceedings, that the Association has a distinct sphere of action for good of its own, and that it has been put well on the road to fill it by its organization and first meeting. What has been accomplished under its first President, the gentle Dr. Trudeau, for whom the general session was in many ways an ovation, will surely be continued under the practical organizing genius of Dr. Hermann M. Biggs, of New York, who now succeeds him.

THE OPSONIC POWER OF THE BLOOD.

Nearly two years ago the extensive vocabulary of medicine was enriched by a word of new coinage. Prof. A. E. Wright, formerly of the Army Medical School, Netley, England, in collaboration with S. R. Douglas, applied the term "opsonins" (from the Greek, "opsono"—I cater for) to certain substances present in the blood-serum, which by acting on the invading bacteria, prepare these for the phagocytic power of the white blood cells. The discovery of these substances and subsequent researches in their nature have opened a suggestive chapter in preventive medicine.

A quarter of a century has elapsed since Metchnikoff first described the important function of phagocytosis. During the greater part of this time the leucocyte was regarded as the only factor in this process. Indeed, Metchnikoff and his school went further and looked upon the white blood cell as the source of the various antibodies present in the blood. The tendency of recent research has been to strip the leucocyte of many of its supposed attributes, although the original power of devouring bacteria is universally recognized.

A picture of amazing perplexity is presented when one attempts to contemplate the protective mechanisms of the blood. To the phagocytic powers of the white blood cells, and the agglutinating, bacteriolytic and bactericidal powers of the blood, with all the bewildering mazes of Ehrlich's side-chain theory, must be added the distinctly separate rôle of the opsonins. These have been studied with great care by Wright and others and the results have illuminated some obscure corners in the doctrine of immunity.

The opsonins modify the bacteria in a manner which renders them a ready prey to the phagocytes. If blood-serum is allowed to stand, even if preserved in a closed capsule, its opsonic power gradually disappears. This fact may possibly interfere with future therapeutic applications of these substances. Another fact of eminent interest from the standpoint of immunity is that certain infections diminish the opsonic power, but have no effect upon the phagocytes. This is explained by the circumstance that certain bacteria and toxins weaken the opsonins. As a result, the natural resistance of an individual following certain bacterial and toxic invasions is reduced.

It has been found by Wright and Douglas that the opsonins play a very important and, indeed, the sole part in protecting the body against staphylococcus invasion. Normal human blood does not exert upon the staphylococcus any bactericidal power whatever, nor is this power developed by means of antistaphylococcus inoculations. Neither does the latter modify the leucocytes in any way, but it increases the opsonic power of the blood. It is a fact that individuals differ as regards their resistance to staphylococcus invasion, and it may be assumed that this difference is due to a temporary or a permanent deficiency in the opsonins. This deficiency enables the staphylococcus, which is always present in the integument, to enter and gain a foothold in the organism. The bacteria apparently unite with and destroy the opsonins with which they come in contact, so that a nidus is formed in which the bacteria proliferate freely, the circulating blood being unable to replace quickly enough the protective substances that have been destroyed.

It may now be asked, what is the nature of these bodies which prepare the bacteria for the subsequent feast by the leucocytes? The recent researches of W. Bullock and E. E. Atkin have shown that opsonin is not identical with any of the antibodies hitherto discovered in the serum. It is of relatively simple constitution, and is destroyed by heat.

These characteristics indicate that the opsonins are probably allied to the enzymes. If a way can be found to preserve the activity of the opsonins after their removal from the blood, then their sphere of usefulness in the therapeutics of preventive medicine will be readily recognized. As a branch of the extensive problem of immunity, the study of the opsonic power of the blood is in its infancy and its future developments are awaited with interest.

THE BIOLOGICAL SIGNIFICANCE OF SLEEP.

It is surprising that physiology has as yet furnished no adequate explanation of sleep. The periodic lull in the vital forces which is accompanied by a lapse of consciousness, and which actually shortens sentient life by at least one-third, has been interpreted in various ways. The practical importance of discovering the causes that underlie sleep is obvious, for only through them can light be shed on the pathological types of slumber.

The hypothesis which has appealed most strongly is that which attributes sleep to an intoxication of the nerve centers by the products of metabolism. This theory classes sleep with the other forms of narcosis which are the results of drug action, or with the comas which supervene in the course of diseases of metabolism. Other explanations regard sleep as the outcome of cerebral anemia, to a retardation or acceleration of the venous outflow, to a retraction of the dendrites of the cortical cells, or to a loss of conductivity in and hence a blocking of the nerve-paths to and from the brain.

An exceedingly novel hypothesis of sleep has recently been expounded by E. Claparède (*Archives de Psychologie*, February-March, 1905). Instead of regarding sleep as the result of cellular intoxication, this author regards it as a means by which the body protects its cells from intoxication. It is a purely defensive mechanism. If sleep were the result of a poisoning of the nerve-cells by the metabolites of the body, how would it be possible to explain insomnia, in which undoubtedly the metabolic poisons are also present? Moreover, an individual may by sheer force of will, or by a stimulation of the highest cortical centers by drugs (*e.g.*, coffee) stave off sleep for a considerable time. This fact militates against the supposition that sleep is an intoxication, for true intoxications, as by opium or chloroform, cannot be inhibited by will power or in any other way.

In conditions of extreme fatigue sleep is impossible. It cannot be denied that in this case the amount of toxic matter present in the body is greater than usual, yet in spite of this increase, the nerve-cells cannot be lulled to rest. This fact strongly refutes the theory of the toxic origin of sleep.

The hypnotic sleep and the prolonged sleep

of hysteria are exactly like ordinary physiological sleep, yet no one would attribute these to a cellular poisoning. These forms of sleep are of purely psychological origin and are of the nature of an inhibition of the activities of the higher cortical cells.

It is a fact worthy of note that among the unicellular organisms, the protozoa, sleep is unknown. The latter appears only at a later stage in organic evolution. Evidently sleep is not an essential attribute of protoplasm, for the single-celled animal performs all the necessary functions of life without it. Sleep must, therefore, be regarded as an accessory phenomenon of life, as a late acquisition. It is a mode of adaptation to the environment, by virtue of which adaptation the animal protects itself from the various noxious influences to which it is exposed.

It may be asked in what manner does sleep protect the body cells against intoxication?· The answer is that during rest these are less vulnerable to external influences than during activity. Thus hibernation, or the long winter sleep occurring in the frog and other animals, tends to fortify these against the adverse changes in the environment. So also in the higher organisms the diurnal lapses of consciousness with their attendant depression of the processes, enable the individual to resist the injurious effects of the toxic products of metabolism.

During sleep, as is well known, the reparative processes are in the ascendant, and the organism gains in weight, while the wastes of the body are carried off or destroyed. In early life, when growth is most rapid, the amount of sleep required by the body is much greater than at a later period, when growth is less. It may, therefore, be stated as a corollary from this fact that bodily activity or wakefulness interferes with the reparative and constructive powers of the cells. There is a definite amount of vital energy at the disposal of the living units. This energy may be neutralized in internal work (growth) or external activity. The latter is incompatible with the former, hence sleep is necessary.

This novel theory, which regards sleep as an instinct which has been gradually evolved in the course of countless ages, may serve to explain many of the anomalies of sleep. Thus, the ability of the individual to determine beforehand the duration of his sleep, the vagaries of insomnia, hypnotism, hysteria and somnambulism, all indicate that sleep is not entirely physical in its origin, but depends upon a psychological basis.

ECHOES AND NEWS.

NEW YORK.

Appointment of Dr. Sobel.—Dr. Jacob Sobel has been appointed adjunct pediatrist to the Sydenham Hospital.

City Death-Rate.—The death-rate for last week was 16.87 per thousand; in the corresponding week of 1900 it fell to 16.74. Last week's deaths from cerebro-spinal meningitis numbered only 72, as against 83 in 1904.

Manhattan Eye and Ear Sells.—The Manhattan Eye and Ear Hospital, the new buildings of which institution are now being erected on Sixty-third and Sixty-fourth streets, east of Third Avenue, has sold its property at the southeast corner of Park Avenue and Forty-first Street, for about $420,000.

Mount Sinai Hospital Alliance.—The Mount Sinai Hospital Alliance has elected the following officers for the year: President, A. M. Fechheimer; First Vice-President, Max L. Schallek; Second Vice-President, Aimee C. Sampter; Recording Secretary, Leon Huhner; Corresponding Secretary, Nina Maehler; Treasurer, Milton M. Stiner, and Directors, Theodore Long, J. M. Levy, Benjamin Manilla, H. C. Dessauer, F. F. Steinhardt, Max Emanuel, S. Phillips, E. A. Friedenreich, C. Bretzfelder, R. J. Gerstel, Carl Jacobs, Daisy C. Bader, Josephine Rosenbaum, Emily Amson, and Hortense Schilt.

Mt. Sinai Hospital's Work.—More than 2,750 free patients were admitted to Mt. Sinai Hospital in the year ended November 30, 1904, according to the president's report issued recently. The total number of those treated was 3,670, not including 1,022 referred to the dispensary. The institution had a balance of only $1,195.51, cash on hand, at the end of the year. Among the gifts received were $10,000 from E. Asiel, $18,830 from Adolph Lewisohn, and $2,877.03 from Henry L. Einstein. The new buildings, at one Hundred and First Street and Fifth Avenue, were dedicated fourteen months ago, having cost, including the equipment and site, $2,752,565.91. Natives of Russia were a plurality of the year's patients, with American-born citizens next in number and Austrians third.

Stony Wold.—A second auxiliary in Brooklyn of the Stony Wold Sanatorium for the treatment of incipient tuberculosis has been organized, with the following officers: Mrs. Thomas R. French, chairman; Mrs. Richard M. Dorsey, Mrs. Martin W. Littleton, Mrs. Camden C. Dike, vice-chairmen; Mrs. C. Hibbard, recording secretary; Miss Alice M. Chittenden, corresponding secretary, and Mrs. Whitney V. Newell, treasurer. The new auxiliary has begun active work by promising to supply the balance needed in order that a Brooklyn young woman, who stands a very good chance of being restored to usefulness by a term at the sanatorium, might at once be sent there, her family not being able to supply the full amount needed for her maintenance. An auxiliary has also been formed at Albany. Mrs. Samuel B. Ward was elected chairman, and Mrs. Gorham treasurer.

$20,000 for Mount Sinai Nurses.—With the object of offering an inducement to the pupils of the Mount Sinai Training School for Nurses to obtain the highest possible proficiency, Mr. Murry Guggenheim has established a fund of $20,000, the income from which shall be applied to create twelve scholarships of one hundred dollars each annually, subject to the following regulations and conditions: (1) Six of these scholarships to be assigned to Junior pupils, three to Senior pupils and three to members of the graduating class. By the attainment of suitable proficiency any nurse can secure

all three scholarships during the term of her tuition. (2) The scholarships to be awarded at the annual graduating exercises, taking place in May of each year, together with a pin for each graduating nurse securing one or more scholarships, engraved, "Murry Guggenheim Scholarship" together with the numerals indicating the year or years in which the scholarship was secured. (3) Scholarships to be awarded to those nurses in each class who shall have displayed the highest degree of proficiency in accordance with the existing method of rating. (4) The fund to be known as the "Murry Guggenheim Scholarship Fund."

Tuberculosis Exhibit.—A tuberculosis exhibition will be held in New York City in November. The National Association for the Study and Prevention of Tuberculosis and the committee on the prevention of tuberculosis of the Charity Organization Society have decided that, in view of the widespread interest in the subject of consumption, as shown by the large number of anti-tuberculosis associations forming in all parts of the country, and the increasing desire to provide better conditions for consumptives in many cities and States, it is time to gather together an exhibition which will show just what has been accomplished in this country and abroad in fighting the great white plague. The exhibition will be so arranged that it will present, through diagrams, photographs and models, a picture exhibition will be so arranged that it will present, of the progress being made in fighting tuberculosis, at the same time that it will show the need for much greater effort to bring the disease within the limits recognized by authorities as possible. Dr. Ernst J. Lederle, former Commissioner of Health in New York, is chairman of the committee in charge.

PHILADELPHIA.

Aid for Hospital.—Last Saturday evening a concert was given at the Academy of Music, the proceeds of which will go to the children's ward of the Methodist Episcopal Hospital. The audience was large and the affair was considered a success.

Post-Graduate Work at U. P.—The faculty of the Medical School of the University of Pennsylvania has announced that the post-graduate course in medicine was opened on May 15. The course will extend over a period of six weeks, and will be designed especially for practitioners who wish to study the latest departures in medicine. The course embraces nearly the entire field of medicine. Laboratory work will be one of the features.

Insects as a Spreader of Disease.—Before the American Philosophical Society, Dr. Skinner, of the Insect Department of the Academy of Natural Science, read a paper entitled "Insects in Relation to Disease." Dr. Skinner has studied this question for many years and is firmly convinced that many individuals are infected by means of insects with tuberculosis and, in countries where the disease abounds, with leprosy. The mortality of these diseases could be greatly reduced if the insects were taken to task.

Women Medical Students Receive Diplomas.—At the Woman's Medical College forty-two students received their diplomas. Among the number are found several foreigners, as Li Bi Cu, of China; Agavine Gilbakian, of Constantinople; Blanca H. Hillman, of Santiago, Chile; Mary R. Wingham, of Ontario, Canada. The address was delivered by Franklin Spencer Edmonds and the diplomas by Mrs. Mary Munford, president of the board of corporation of the college. The graduates gave their annual dinner in the gymnasium.

Nurses Receive Diplomas.—The graduation exercises of the nurses training school of the Philadelphia Hospital were held in the clinic, May 18. The twenty-eight graduates listened to addresses made by Dr. S. Solis-Cohen and Dr. Edward Martin, Director of the Department of Health and Charities. The graduation exercises of the Philadelphia Lying-In Charity were held in the New Century Drawing Rooms. The twenty-two graduates were addressed by Rev. William D. Roberts. From the Presbyterian Hospital Training School eleven nurses graduated. The exercises were held in the Princeton Presbyterian Church and the address was made by the Rev. Joseph W. Cochran, of the Northminister Presbyterian Church. The Jewish Maternity Hospital Training School graduated five nurses. Dr. David Riesman delivered an address and Mrs. Belle S. Cohen delivered the diplomas.

Federated Jewish Charities of Philadelphia.—At the annual meeting of this organization Mr. Jacob Gimble pointed out that the federation now has 2,260 members, that the average individual subscription is $77; that during the first year of the existence of the body, $121,000 were collected; that during the past year it has been increased to $127,506. The following appropriation have been made: Jewish Hospital Association, $30,000; Jewish Foster Home and Orphan Asylum, $20,000; Society of the United Hebrew Charities, $28,200; Hebrew Educational Society, $5,600; Orphan Guardian Society, $4,000; Jewish Maternity Association, $8,000; Jewish Immigration Society, $800; Young Women's Union, $9,500; Hebrew Sunday School Society, $2,600; National Farm School, $6,400; National Jewish Hospital for Consumptives, at Denver, $3,000; Alliance Israelite Universelle, $500.

Medical Society of the State of Pennsylvania.—The fifty-fifth annual meeting will be held in the Y. M. C. A. Building, Scranton, Pa., September 26, 27 and 28, 1905. The concessions committee of general arrangements for the fifty-fifth annual convention of the Pennsylvania State Medical Society beg leave to inform the profession that applications for space for exhibition purposes may be contracted for from this date until the time of the convention, which is to be held in the city of Scranton, September 26, 27 and 28, 1905, enclusive. This year's meeting is to be conducted in a manner somewhat out of the ordinary, both in the work of the various sections, as well as in the entertaining of the visiting members. It is expected that some of the most eminent medical men of this country will be guests of the Society, and by their presence will greatly add to the interest and attendance of this meeting.

North Branch of the Philadelphia County Medical Society.—At this meeting, which was held May 16, Dr. Henry Leffmann read a paper on the "Dangers of the Domestic Use of Illuminating Gas and the Means of Avoiding Them." He pointed out that the obnoxious odor of old-fashion coal gas was a safeguard in its use. Since the form of illuminating gas now used is odorless, its presence, if it escapes, cannot be detected. He suggested that the sale of inferior rubber hose for connecting gas stoves be prohibited by law, and that in no case should there be a stop-cock at the service end of the tube. Dr. W. M. L. Coplin read a paper entitled "The Medicolegal Relations of Gas Poisoning." Dr. William S. Wadsworth spoke of "The General Characteristics of Gas Poisoning as Seen in Philadelphia." Mr. William McDevitt and Mr. Washington Devereux, Inspectors of the Fire Underwriter's Association, also spoke.

CHICAGO.

Tuberculosis Bill Vetoed.—A bill introduced by Mr. Glackin, appropriating $25,000 for the erection of a sanitarium for the consumptive poor, was recently

vetoed by Governor Deneen. Several leading physicians have written the Governor, urging him to set forth the reasons for his action.

Cerebrospinal Fever.—The seventh death from this disease since the first of the year occurred in the County Hospital on May 9. The victim was another Italian immigrant, twenty years old; ill on arrival, May 7; removed from the train to hospital same day, and died forty-eight hours later.

To Open Children's Hospital.—The new Children's Hospital on the grounds of the County Hospital, which has cost the county $80,000, and is considered the finest institution of its kind in the West, will be formally opened Tuesday, May 23. This hospital occupies 147 by 43 feet of ground, is three stories high, has 20 wards, and accommodations for 150 patients. Other features of the new hospital are: Isolation wards where patients are kept till the character of the disease is known; a large demonstration room; two dining rooms for convalescents and a reception room; room with south front, with one-half the exposure covered with glass to let in the sunshine; plate glass partitions above the wainscoting of all the wards, so that patients may be under the direct observation of nurses at all times; and a large porch, screened for safety, where the little patients may enjoy the air in pleasant weather. The building is strictly fireproof; 57 physicians are on call, with a staff of 12 nurses.

GENERAL.

Appointment of Dr. Winn.—Dr. John F. Winn, of Richmond, Va., has been elected by its board of trustees, Professor of Clinical Obstetrics in the University College of Medicine of that city. He was formerly lecturer on obstetrics in the same institution.

Johns Hopkins Hospital Staff.—The resignation of Dr. Richard H. Follis as resident surgeon in the Johns Hopkins Hospital has been accepted. His successor is Dr. William F. Sowers. Dr. S. H. Watts has been made first assistant and Dr. R. T. Miller second assistant resident surgeon.

Plague in India.—Three-quarters of a million people have already died of the plague in India this year, according to figures furnished by Indian Secretary Brodrick, in the House of Commons recently. The mortality from January 1 to April 1 was 471,744, while another 215,961 succumbed during the four weeks ending April 29.

Rhode Island Medical Society.—The ninety-fourth annual meeting will be held at eleven o'clock A.M., Thursday, June 1, 1905, in Masonic Building. The following program is to be presented: Paper by Dr. William E. Wilson, "Treatment of Inoperable Malignant Growths with Coley's Toxines." Paper by Dr. William J. McCaw, "The Physician's Medicolegal Responsibility." The annual address by President W. H. P. Faunce, of Brown University, "The Medical Profession in Modern Life."

St. Joseph's Hospital, Baltimore.—The Resident Staff at St. Joseph's Hospital for the ensuing year will consist of the following: Dr. J. M. Lynch, University of Maryland, '04, Resident Surgeon and Senior Resident (reappointed); Drs. Bernard J. Wess, Baltimore Medical College, '05; Sydenham Rush Clarke, University of Maryland, '05, Resident Physicians; Drs. Elmer H. Adkins, University of Maryland, '05; Frederick W. Davis, College of Physicians and Surgeons, '05, Resident Surgeons; Dr. H. C. Irwin, University of Maryland, '05, Resident Gynecologist. Drs. Wess and Clarke are Baltimoreans; Drs. Lynch, Adkins and Irwin are from North Carolina and Dr. Davis is from Connecticut. Dr. Eugene H. Hayward has been reappointed Pathologist. Dr. H. E. Ashbury has been reappointed to have charge of the X-ray work. The Dispensary Staff will consist of Drs. John S. Fischer and Eugene L. Chutchfield, Physicians. Drs. Joseph E. Gately, Frank E. Brown and M. John Cromwell, Surgeons.

McGill University.—Sir William McDonald has made a final gift of $50,000 toward the building and equipping of the McGill Students' Union. This brings the amount of Sir William's donation to the Union up to a total of $185,000, not including his grant of a free site, which would make the total about $230,000. The final steps in the proposed amalgamation of the medical faculties of Bishop's and McGill were taken at a meeting of the McGill corporation on Wednesday. The amalgamation will go into effect on June 30 next. McGill will confer the *ad eundem* degree of M.D., C.M., upon the professors, lecturers, and instructors of Bishop's medical faculty. The corporation also adopted a resolution submitted by the McGill medical faculty proposing full amalgamation of the faculty with the university. Heretofore medicine has been on a totally different administrative basis to that of the other faculties of McGill. The affairs of science, arts, and law have been conducted by a common office, with one registrar for all three faculties, while medicine has had an office and registrar of its own. Under the new arrangement all the faculties will now be administered from the main office.

Panama's Fight With Fever.—John Barrett, who recently gave up his post as Minister to Panama to become Minister to Colombia, arrived recently from Colon aboard the steamship Advance. He said that sanitary conditions in the Canal Zone were gradually improving under the efficient management of Dr. Gorgas, but that an "alarming condition existed in Colon, hitherto practically free of yellow fever." The engineering problems were secondary to the problem of sanitation. Of the 7,000 employees on the Isthmus, only about 5 per cent. were ill when Mr. Barrett came away. "Five new cases of fever were reported at Colon the day before I sailed," Mr. Barrett said. "There is no panic, but many employees have become frightened by the fever and have run away from it. It seems to me about as easy to live in Panama and escape the fever as it is to live in New York and escape pneumonia and automobiles. All the buildings in the infected district are fumigated and the workmen are sleeping under mosquito tents. It is going to be a difficult fight for the sanitary experts, but they will finally master the fever." Mr. Barrett said his personal relations at Panama with all in authority had been cordial; that his relations with President Reyes at Bogota, Columbia, were very pleasant and that Panama was in condition for the reestablishment of friendly feeling with Colombia. He hoped to accomplish something in the way of cementing the friendship of the United States and Colombia.

West Virginia State Medical Association.—The thirty-eighth annual meeting was held in the Board of Trade Hall, Wheeling, W. Va., May 24, 25 and 26. The following program was presented: "The Teachings of Failures," by Dr. F. L. Hupp, of Wheeling; "The Palliative Treatment of Prostatic Hypertrophy," by Dr. H. E. Sloan, of Clarksburg; "Preoperative and Postoperative Treatment of Surgical Cases," by Dr. J. E. Cannaday, of Paint Creek; "Appendical Abscess—Pathology and Treatment—Report of Cases," by Dr. S. M. Mason, of Clarksburg; "Injuries of the Head—Report of Cases," by Dr. Henri P. Linsz, of Wheeling; "Anatomical and Physiological Principles Involved in the Symptomatology of Brain Traumatism," by Dr.

J. Schwinn, of Wheeling; "Office Treatment of Rectal Diseases," by Dr. William M. Beach, of Pittsburg. Symposium on Pneumonia: "Etiology," by Dr. S. S. Wade, of Morgantown; "Pathology," by Dr. L. O. Rose, of Parkersburg; "Symptoms and Signs," by Dr. W. W. Thompson, of Charlestown; "Treatment," by Dr. L. D. Wilson, of Wheeling; "Tuberculosis," by Dr. J. W. Preston, of Keystone; "Pseudo-Membranous Croup," by Dr. S. W. Bush, of Parkersburg; "Cases and Experiences of Interest," by Dr. W. H. Sharp, of Parkersburg; "Diseases of the Kidneys," by Dr. M. McNeilan, of Parkersburg; "Rupture of the Bladder," by Dr. J. R. Cook, of Fairmont; "The Importances of Early Diagnosis of Interocular Lesions," by Dr. H. R. Johnson, of Fairmont; "Ficker's Diagnosticum," by Dr. L. O. Rose, of Parkersburg; "Drugs and the Diazo Reaction—A Communication," by Dr. William W. Golden, Elkins.

American Larynological Association.—The twenty-seventh annual congress will be held in Atlantic City, N. J., June 1, 2 and 3, 1905, at the Hotel Chelsea. The following program has been arranged: "A Case of Nasal Hydrorrhea," by Dr. D. Bryson Delavan; "Partial Turbinectomy followed by Acute Otitis, Mastoiditis, Sigmoid Sinus Thrombosis, with Extension to Internal Jugular Vein," by Drs. Chas. H. Knight and Jas. F. McKernon; "Further Report on a Case of Lupus of the Pharynx and Naso-Pharynx (Transactions, 1904, p. 123)," by Dr. Herbert S. Birkett; "The Treatment of Acute Inflammations of the Nasal Accessory Sinuses," by Dr. Thomas Hubbard; "An Intra-nasal Operation for Draining the Frontal Sinus," by Dr. E. Fletcher Ingals; "Exhibition of Sections of the Nose of Various Animals," by Dr. John M. Ingersoll. Symposium on Sinus Disease: What symptoms in diseases of the Nasal Sinuses demand radical surgical intervention? What have been the comparative results of conservative and radical methods of treatment? A series of ten-minute papers will be presented as follows: "The Maxillary Sinus," by Drs. Robert C. Myles and George A. Leland; "The Frontal Sinus," by Drs. C. G. Coakley and Wm. E. Casselberry; "The Ethmoidal Sinus," by Drs. John O. Roe and John W. Farlow; "The Sphenoidal Sinus," by Drs. J. W. Gleitsmann and T. Passmore Berens; "Deflection of the Nasal Septum in Children," by Dr. Arthur A. Bliss; "A Second Note on a Case of Sarcoma of the Nose," by Dr. J. Price-Brown; "A Further Study of Hay Fever, Clinically, with the Employment of Pollantin," by Dr. Alexander W. MacCoy; "Tonsillotomy, the Basis for the Treatment of Tonsillar Affections," by Dr. George B. Hope; "Gangrene of the Tonsil, with Report of Cases," by Dr. Charles W. Richardson; "Sequel to a Case of Epithelioma of the Larynx, Shown to the Association Two Years Ago (Transactions, 1903, p. 98)," by Dr. Walter F. Chappell; "Two Cases of Foreign Body (impacked) in the Oesophagus," by Dr. Gordon King; "Papilloma of the Larynx in Children," by Dr. J. Payson Clark; "Rest in the Treatment of Laryngeal and Pulmonary Tuberculosis," by Dr. W. Peyre Porcher; "The Relation Between Laryngeal and Pulmonary Tuberculosis," by Dr. Walter F. Chappell; "Complete adhesion of the Vocal Bands Following Tracheotomy After Diphtheria," by Dr. D. Braden Kyle; "Rogers' Modification of the O'Dwyer Treatment of Chronic Stenosis of the Larynx," by Dr. D. Bryson Delavan; (*a*) "Papilloma of the Nasopharnyx Simulating Epithelioma," (*b*) "Fibroma of the Larynx in a Child of Three Years, Necessitating Tracheotomy; subsequent Laryngofissure for Removal Followed by Prolonged Intubation," by Dr. Thomas J. Harris; "A Case of Laryngeal Diphtheria in an Adult (Necessitating Intubation) Complicating Cerebrospinal Meningitis," by Dr. William K. Simpson; "An Unusual Case of Edema of the Glottis," by Dr. Mayer. Executive session; unfinished business; election and installation of officers; adjournment.

New York Charity Legislation of 1905.—Homer Folks, writing in a recent number of *Charities* says that the New York Legislature of 1905 remained in session for a length of time unprecedented in recent years. The subjects under consideration which attracted a large degree of public notice were those pertaining to taxation, franchises, and the powers of railway and other corporations. A considerable number of important measures pertaining to charities were, however, considered by the Legislature at length.

Boards of Managers for State Hospitals.—Perhaps the most important bill of the session was that relating to the management of the State hospitals for the insane. A declaration in favor of the restablashment of boards of managers was made by Governor Higgins in the columns of *Charities* of October 22, 1904, and repeated in his inaugural message. A bill was brought forward early in the session by the State Charities Aid Association and, after conferences with leading members of the Legislature and the Commission in Lunacy, was introduced in the Assembly by Robert J. Fish, chairman of the Judiciary Committee, and in the Senate by Jotham P. Allds, a member of the corresponding Senate committee. Numerous amendments, some of them of minor importance and some of them material, were made, the bill in its final form including, besides the propositions originally brought forward by the State Charities Aid Association, the various amendments to the insanity law desired by the Commission in Lunacy at this session. The bill, in its final form, passed both houses substantially without opposition. Among its principal provisions are the following. The boards of visitors, established in 1902, are abolished, and a board of managers is provided for each hospital. Each board of managers is to consist of seven members, of whom two shall be women. The term of office, after the first appointments, is seven years, the term of one member of each board expiring each year. The managers are to be appointed by the Governor, with the advice and consent of the Senate, and are subject to removal by the Governor after a hearing.

The present law, giving the Commission in Lunacy "management, direction and control of the State hospitals" is repealed, the commission retaining a general "oversight" over the State hospitals and the control of the property. The power to establish rules and regulations, now vested in the commission exclusively, is to be exercised by the boards of managers collectively, subject to the approval of the commission. The power now possessed by the commission, subject to the approval of the Governor, to transfer any of the powers and duties of a superintendent of a State hospital to another officer to be appointed by it, is abolished; and the power now possessed by the commission to transfer superintendents from one hospital to another is modified, so that such transfers can be made only when a vacancy occurs and upon the request of the boards of managers of the hospitals affected. The boards of managers have the "control and management" of the State hospitals except as to the powers explicitly conferred by statute upon the commission. They have control of the "internal affairs" of the State hospitals. They must investigate and determine the truth of charges made against the superintendent or any other officer or employee of the hospital. They are to meet

monthly, and the superintendent is required to submit a report on all important phases of the hospital management and upon any other matters required by the board. The appointment of a superintendent, now vested exclusively in the commission, will hereafter require the confirmation of the board of managers of the hospital for which the appointment is made. The superintendent, at present removable by the commission, is removable by the board of managers after a hearing, subject to the approval of the commission. The board may suspend the superintendent pending the final decision. The appointment and removal of the steward, who is the principal assistant of the superintendent in the business affairs of the hospital, now vested in the commission, is to be by the superintendent subject to the approval of the commission. The Commission in Lunacy is required to call a meeting of the superintendents of all the State hospitals at its office in Albany at least once in every three months, and each board of managers may send one of its members to attend such meeting. The per capita amount which may be expended in the construction of buildings for State hospitals is increased from $450 to $550. The two branches of the Manhattan State Hospital on Ward's Island, now practically separate hospitals, are consolidated. The qualifications required for the president of the Commission in Lunacy are restored to the form in which they stood for many years until changed four years ago, and require that he shall have had five years' actual experience in the care and treatment of the insane and an experience in the management of institutions for the insane. Plans and specifications for buildings, before adoption by the Commission in Lunacy, must be submitted to the board of managers of the hospital affected, which may consider them for not less than fifteen nor more than sixty days, and submit a statement of their opinions and suggestions in regard thereto. The final determination rests, as now, with the commission, subject to the approval of the Governor and the Comptroller. The commission is authorized to designate some one in its office as a central treasurer for all the State hospitals, but all bills, before payment by the central treasurer, must be signed by the steward and countersigned by the superintendent of the hospital for which they are incurred. Formerly, the superintendent was authorized to remove any resident officer. Under the law passed three years ago, the approval of the commission was required for any such removal. In the present bill this authority is restored to the superintendent, the approval of the commission being required only in the case of a steward. The position of purchasing steward for the four hospitals in or near New York City, created by the commission several years ago, is given statutory recognition, and the incumbent is made the resident steward of the Manhattan State Hospital. Being appointed and removable by the commission, he is as resident steward in a somewhat different position from other stewards, a fact which is to be regretted, but which seems inevitable if the position of resident and purchasing steward is to be combined in this hospital.

OBITUARY.

Surgeon Hatton N. T. Harris, U. S. N., died in Pensacola, May 19, of appendicitis. Surgeon Harris was appointed in 1887 as an assistant surgeon in the navy.

Dr. Erwin Fischer, one of Pittsburg's most prominent physicians, died May 21, after weeks of semiconsciousness and sleep. Five weeks ago Dr. Fischer, after a long, hard siege of work, practically collapsed, and since that time until his death slept and dozed, being unconscious for periods of from four to seven days each, then waking only for a few minutes. Autopsy showed abscess of the brain.

Dr. John W. Bayne, of Washington, died suddenly, May 17, from suffocation as the result of an affection of the throat. He was President of the Medical Board of Providence Hospital and Professor of Clinical Surgery at Georgetown University. During the war with Spain he rendered conspicuous service as a Major and Brigade Surgeon. He was fifty-nine years old.

Dr. Jacob H. Asch, one of the best-known German physicians in this city, died May 19, aged sixty-five years, at his home, 780 Lexington Avenue. He came to this country as a young man, having received his degree from the University of Berlin, Germany, in 1804, and settled down to the practice of his profession in this city after a brief residence in Philadelphia. At his death he held a commanding position in the profession at large, some of its leading members in this city being among his close friends and collaborators.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, May 6.

CENTENARY FESTIVAL OF THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY—A MARTYR OF SCIENCE—ANTI-ALCOHOLIC INTEMPERANCE—TUBERCULOSIS AND THE INDUSTRIAL CLASSES.

The leading medical society of these islands, the Royal Medical and Chirurgical, will celebrate its Centenary Festival on May 22 and the two following days. The chief feature will be the admission of the Prince of Wales as an Honorary Fellow of the Society. This is considered a high honor for the Society. In this public association with the healing art the Prince is following a precedent set by His Royal father, who is a Fellow of the Royal College of Physicians and Surgeons. As such the King is entitled to practice medicine and surgery on any of his lieges who may choose to entrust himself to his ministrations. Edward VII., however—though his knowledge of certain departments of surgery is like Sam Weller's knowledge of London, "extensive and peculiar"—exercises the privilege *occidendi impune* (as Molière has it) which he possesses only on pheasants, grouse and deer. Newspapers of sufficient antiquity have set the example of quoting from themselves a hundred years ago; the Society follows this example in its own way by having an exhibition of books, instruments, portraits, etc., illustrating the state of medical practice and the personalities of the London profession a century ago.

The study of tropical pathology, which has already cost several valuable lives, has lately added another to its roll of martyrs. Dr. Joseph Everett Dutton died a couple of months ago, at Kosongo, in the Congo, where he had been sent by the Liverpool School of Tropical Medicine to study trypanosomiasis and tick fever. Dr. Dutton, who was only twenty-nine years of age, was a highly promising investigator, and had already done excellent work. In 1900 he went to Nigeria as a member of a scientific expedition, which, on its return, issued a report on antimalaria sanitation and a set of important monographs of filariasis. In the following year he went out to the Gambia alone. The outcome of that expedition was another report on malaria which has proved of great service to the colony. It was during that expedition that Dr. Dutton identified, in the blood

of a patient of Dr. Forde, medical officer of Bathurst, a trypanosome which had previously been found only in animals. Subsequently he detected the same organism in numerous other cases in the Gambia and elsewhere. This was the first trypanosome found in man, and the discovery has been an important factor in determining the etiology of sleeping sickness. Dutton described several other trypanosomes new to science. A report on sanitation, which he drew up as a result of a visit to Senegambia in 1902, was presented to the French Government. His last expedition to the Congo began in 1903, Dr. Dutton being accompanied by Dr. Todd and Dr. Christy, the latter returning home in June, 1904. Toward the end of 1904 the expedition had made such progress as to enable Drs. Dutton and Todd to demonstrate the cause of tick fever in man, also to prove the transference of the disease from man to monkeys. During these investigations both investigators contracted the disease; Dutton attributed his to inoculation in the course of a post-mortem examination. According to the last letter received from them, dated Kosongo, February 9, they were returning home in excellent spirits. The letter contains statements as to two new facts which seem to place the etiology of tick fever beyond question. One is that for the first time Dutton had succeeded in imparting spirillum fever to a monkey by means of the tick. The other, contained in a postscript dated February 12, is to the effect that a monkey had been fed after hatching—the ticks having been reared from naturally infected parents. At a special meeting of the Liverpool School of Tropical Medicine, held on May 4, a resolution was passed expressing the sense of the loss which science had suffered by the death of the brilliant young investigator and the loss to his colleagues by the removal from their midst of his bright and enthusiastic personality. The Congo Free State Government has also expressed its sorrow for the loss of "this devoted scientist, who succumbed to the fatigues of a philanthropic mission of the highest importance which he voluntarily undertook."

A great wave of what may perhaps be called anti-alcoholic intemperance is sweeping over the medical profession in this country. A few weeks ago a conference was held at which the use of alcohol in any form and for any purpose was condemned by Sir Victor Horsley with an ultra-vigor vigor; his denunciations were re-echoed by Sir William Broadbent, and other high priests of the medical synagogue. Now, Sir Frederick Treves, evidently feeling it due to himself not to be outdone in this direction, has pronounced a curse almost as strong and as sweeping as that of Ernulphus, which the curious may find in that improving work, *Tristram Shandy*. Speaking at a meeting of the Church of England Temperance Society the other day, he declared that alcohol is distinctly a poison, the use of which should be regulated just as strictly as that of any other poison. It is, moreover, an insidious poison, producing effects for which the only antidote seemed to be alcohol itself. It is not an appetizer and even in small doses it hinders digestion. It profoundly modifies the nutrition of the body with the results that drunkards are ill-nourished. Its stimulating effect only lasts a moment and after it has passed off the capacity for work falls enormously. It brings up the reserve forces of the body and throws them into action, with the result that when they are used up there is nothing to fall back upon. It may be remembered that Treves was for two or three months in South Africa and his testimony is that on the march to Ladysmith the soldiers who were drinkers fell out as though they were labeled. Dealing with the action of alcohol on nerve centers, he said the use of alcohol is inconsistent with surgical work or with any work requiring quick, keen, and alert judgment. He said that the use of alcohol is emphatically diminishing in hospital practice and among professional men who work hard during the day. The idea that a young healthy person wanted alcohol he pronounced to be preposterous; they might as well want morphine or strychnine. He concluded by saying that having spent the greater part of his life in the operating room, he could state that there were some persons he did not mind operating upon and others that he did, but the person whom of all others he dreaded to see enter the operating theater was the drunkard. About the same time, at a meeting of the Women's Total Abstinence Union, Mr. Vickerman H. Rutherford denounced alcohol as a great factor in national inefficiency, and he expressed a wish that doctors would cease to play down to public ignorance by prescribing alcohol in any form. A week or two ago there was a conference of physicians at Leicester, to hear an address by Dr. G. Sims Woodhead, Professor of Pathology at Cambridge. There, too, alcohol was denounced as the root of all evil, physical and moral, and one practitioner after another rose to express his agreement with the learned lecturer. It is all right enough, but it would be a good deal more edifying if the doctors followed their own virtuous precepts a trifle more strictly. When a physician who has been eloquent in prescribing alcohol as an unclean thing goes straight to the nearest bar and asks for an *apéritif*, which he follows up with a dinner where champagne and other wines flow freely, and even the deadly liquor is absorbed without apparent scruple or repugnance, one may perhaps be forgiven for not taking very seriously professions made on public platforms. It is the fashion just now to condemn alcohol, and even sensible men have to follow the lead of the fanatics. The difference between precept and practice is well illustrated by a story told of the late Sir Andrew Clark. Very likely your readers have heard it before, but it will bear repetition. Sir Andrew was an ardent apostle of temperance, and as he had a command of unctuous verbosity almost as great as Gladstone's, he was naturally much in request at teetotal meetings. A country doctor one day brought him a leash of patients for consultation, and the lion was so pleased with the proceeds of the morning's hunting that he asked the yokel to stay to luncheon and then accompany him to a meeting where he was to discourse on the evils of drink. The country practitioner was greatly impressed by what he heard, and expressed his approval in terms so flattering that the orator asked him to go home and dine with him. At dinner the guest was not a little surprised to be asked by the denouncer of alcohol to join him in a bottle of champagne. Another followed, and perhaps a third. At any rate the great man unbent so much that the little man ventured to hint at the inconsistency between his teaching and his practice. Whereupon the famous physician delivered himself to the following effect: "My dear fellow, I have a vast correspondence which I cannot possibly attend to till after dinner. I am then so tired that I cannot deal with it unless I have some champagne—and when I have had some champagne, I don't care whether I deal with it or not!"

A few days ago Dr. Arthur Latham, physician to St. George's Hospital, and author of the essay to which the Advisory Committee of the King's Sanatorium awarded a prize of $2,500, gave an address on "The Industrial Classes and the Treatment of Tuberculosis."

He stated that in England and Wales there were 1,000 deaths every week from consumption and 2,000 deaths a week from all forms of tuberculosis. The annual loss from consumption in London alone might safely be put at $20,000,000, and the total annual loss from all forms of tuberculosis at about twice that amount. Much of this loss came from the pockets of the industrial classes, and yet these classes were doing comparatively little to ensure themselves against it. Owing to the work of the National Association for the Prevention of Consumption, and of the consumption hospitals, the municipal councils had been stirred into action, and some of them even endowed a few beds in sanatoria. By this educational work the death-rate from tuberculosis had been largely reduced. They had to consider, however, how to cure those suffering at the present time from the disease. The great consumption hospitals should do more than act as educational centers. They might kill tuberculosis in another one hundred years by education, but they must consider the claims of the present generation. Hospitals in towns were not suitable for the cure of tuberculosis; they should be used only for the reception of cases which were waiting their turn to be admitted into the country institutions. It was imperative for the consumption hospital to be closely linked to sanatoria in the country. Could the industrial classes do nothing for themselves in this matter? He replied that the question was entirely in their own hands. The great friendly societies paid money to those members who were sick, but they took no measures to lead a man back to health, and they did nothing for the prevention of disease. He was sure that those societies would move as soon as they understood that they could really help, and he was the more certain of it because it could be shown that, by doing so, they would save their funds. The South London district of the Ancient Order of Foresters had lost in the last twenty-five years over $55,000 from consumption. There was reason to believe that other districts and other societies had not lost less, so that the aggregate loss of all friendly and provident societies in the country must be considered. He asked the industrial classes to insist on the friendly and allied societies joining in the crusade against consumption. If they could establish sanatoria for workers and maintain these institutions themselves they would do much to lessen the sum of human misery, and he believed that some of them might live to see the day when the "great white plague" would have lost its hold on the land.

OUR PHILIPPINE ISLANDS LETTER.

(From Our Special Correspondent.)

THE PULAJANE RELIGIOUS FANATICS—THE WHITE MAN'S BURDEN—BINO AND PROSTITUTION THE BANE OF THE SOLDIER—LAUDABLE EFFORTS TO STAMP OUT VENEREAL DISEASES—DESIRABLE PROTECTIVE LEGISLATION IN ENGLAND AND AMERICA.

Since my last letter the Sheridan came south to bring a regiment which is to garrison this and other points in this Pulajane-ridden island. Your readers must not suppose that Pulajane is a new disease; perhaps 'twere better it were. No; Pulajane is the name of a set or sect of natives whose sole purpose is to make the life of the American invader (for so the Samarites look upon us) miserable. An innocent public at home is informed from time to time that a number of scouts and constabulary have been ambushed and killed by "the band of outlaws in Samar," band of outlaws being the euphemistic term used by that honorable and expensive body known as "The Philippine Commission," to designate this excellently organized and daring body of upward of six or seven thousand men.

It matters not how these Pulajanes are designated, they necessitate the presence, after three years of civil government *à la* Taft, of a trained body of soldiers to help out in case the scouts and constabulary are about to be eaten up (metaphorically, of course) by aforesaid Pulajanes.

Calbayog is a fairly healthy post, I am told, as posts in the Philippines go, but heaven help any one who is compelled to spend a long time there, especially when peace, complete or comparative, reigns. The isolation and deadly monotony must indeed try men's souls. However, no complaint is heard from the officers; they invariably make light of the trials and discomforts of place and climate.

It makes not much difference, a casual observer would think, where one was stationed over here; his prayer might find expression in the words of Leontes:

> . . . "The blessed gods
> Purge all infection from this air whilst we
> Do climate here."

However this, by the way, so long as we must be bearing our part of "The White Man's Burden," the least the Government can do is to make life as bearable and surroundings as healthy in any given post as possible, and to their lasting credit, be it said, the powers "that be" have not spared, nor are they sparing, any trouble or expense to bring about such a consummation wherever soldiers are required to garrison.

Judging from the appearance of both officers and men of the infantry regiment which we are to take to America and which has been here two years, Calbayog has been for them an exceptionally healthy post, and indeed they tell me that other places should not be judged by this particular reservation since, notwithstanding the efforts of the Federal authorities, it is at most camps simply a question, as Shakespeare has it, of "holding sickness awhile at arm's length." Whatever statistics may show or be made to show (and we well know that they do not even lie truthfully) it is safe to say that in these islands, if it is not one disease it is another. The climate of Calbayog, for instance, is not insalubrious, but the number of prostitutes in the little town increased manifold with the coming of troops, and considerable venereal disease was ever present; for the women are easy of access, uncleanly in person, their surroundings filthy, and there is little, if any, control over them in the small towns as there is, for instance, in Manila.

As to this indiscriminate association of the men with the native women and all that goes with it, there is but one opinion: that the effect upon the man is singularly degrading. Among other things that "go with" this female companionship [*sic*] are the native drinks—bino, made from the nipa-palm, and tuba, a concoction from the flowering cocoanut tree. Now, the former may be bought for from fifteen cents a pint for the best, *i.e.*, the most insidious, to four cents a pint for the lower grades. Taken in large quantities it is a villainously poisonous form of "booze," and leads to partial or complete physical, mental and moral degeneration.

Such is the stuff the soldiers drink instead of beer, which costs in such towns as Calbayog twenty-five cents a pint, and can be obtained only in saloons which are invariably of the lowest type, and, of course, outside the military reservation. And so we get back to the "canteen" question. Before those misguided females of the W. C. T. U. succeeded in getting Congress to

do away with the canteen soldiers could get beer and light refreshments at a moderate cost and under decent conditions. The temperance cranks should be held responsible for the shocking wrecks which bino has made since our occupation of the Philippines as well as the great increase of drunkenness in the army everywhere.

It would be unfair to say that the natives encourage, by their actual example, overindulgence in native wine drinking, for, as a matter of fact, they are remarkably abstemious; nor does every soldier who imbibes become a bino fiend, but between the moral laxity he finds outside the post and bino indulgence his moral sense of proportion and of the eternal fitness of things becomes, to say the least, warped.

"The moral laxity" among the natives is, to our way of thinking, simply amazing. A man may get a girl from her parent or parents by paying a few pesos, and for a miserable sum occasionally keep her as "his girl" so long as he pleases. Illegitimacy is no "bar sinister," a religious or civil form of marriage being entirely superfluous, this being especially true in former times and before our occupation of the islands. As Hudibras says:

> "They freely married where they pleased,
> Did need no license nor no priest,
> Nor friends nor kindred to assist,
> To join in holy state of matrimony."

Every perverted notion of woman's relation to the opposite sex was the immediate result of such conditions; the moral atmosphere became badly tainted and is to-day. Such is the moral atmosphere the soldier breathes, and what with oversexual indulgence, bino, an utterly debilitating climate and much enforced idleness, a soldier is very likely to "run down," mentally, physically and morally. This is not my statement, it is that of a thoughtful and experienced officer of high rank, who has served five years in the Philippines and in many different places. Still another officer put the case thus briefly and forcibly: "I am inclined to believe that an officer or soldier, unless he exercises the greatest self-control, is liable, after some time in the Philippines, to give way at the point of least resistance; in other words, his weak spot, whether mental, moral, or physical, will find him out. Life is one constant restraint; food, drink and exercise must be taken in great moderation. If confined to a garrison the time hangs heavily, it merely 'ambles withal.' There is no diversion and (especially is this true for the private, no normal amusements) not even a library." A private talking to me along the same lines, said: "The idleness, the woful lack of amusements and of any social intercourse, such as we have at home, the want of a library, and indeed of any reading matter (most of the time) brings about a discontent and a 'home yearning' which may well drive the best of us to bino and other indulgences."

This man told me the rather illuminating fact that the arrests and fines for petty offenses were much fewer in his company than in others. He attributed this to the fact that through the exertions of the members of his company debating club a considerable fund was raised, which enabled them to subscribe to a large number of weekly and monthly periodicals. This little circulating library was a source of great comfort to the men, and helped to keep them out of mischief.

Here is a suggestion for the W. C. T. U., and indeed for other philanthropic organizations; they might present the soldiers of the American army with books instead of unnecessary and harmful acts of legislation.

I alluded above to the means taken in Manila to regulate prostitution and prevent the spread of venereal disease. I was glad to be able yesterday to take the matter up with Dr. Thomas R. Marshall, whom I have mentioned before, and who has had so much to do with the cleaning up of this city.

It may be said with truth that the Board of Health has tackled this troublesome question in a manly and not a prurient fashion. Their viewpoint was the greatest good of the greatest number, and they allowed no silly Anglo-Saxon sentimentality to stand in the way. Of course, there was a howl at home from certain "babes and sucklings" in sanitary science and disease prevention. Well, here is the way they handle (to quote the "holier-than-thou" preacher of New York) the "social evil."

In the first place, the houses of prostitution are given a license, not as such, but as a second-class bar. The primary object of this particular form of licence is to enable the police and sanitary inspectors to enter at will, while it prohibits the sale of anything but beer and light wines. Secondly, following the practice in European cities, the houses are limited to a circumscribed section of the town, and houses, gardens, and streets are kept wonderfully tidy. This is seen to by the police and inspectors. Thirdly, reputable physicians, well paid, so that there may be no temptation to slur their work for "a consideration," examine the women in the various houses several times a week, and every one found with venereal trouble is taken to a hospital for treatment and is kept there until cured.

This hospital deserves more than passing mention. In the Spanish days such women were taken to the wretched Bilibid prison for treatment, where, indeed, the latter state of the poor creatures was worse than the first. Through the efforts of the physicians of the Health Board a roomy, attractive house was purchased, and converted into a receiving hospital for women of the town. I went through the same with Dr. Marshall, and cannot see that anything further could be done to make the surroundings more normal, cleanly and attractive. And not only are their immediate physical ills attended to, but sensible and well-directed efforts made to start the inmates on the way to a better life. It must be remembered that the prostitutes are not made up solely of Filipino and Japanese women, upon whom such efforts would be wasted; there are French, Swedish, German, Russian and some American women among them, a certain small proportion of whom are "getatable" from the esthetic side.

It goes without saying that such sensible and scientific regulation of this ever and all-over present question has greatly limited the spread of infection and cases of venereal disease, as it has in every country where stringent laws are enforced to that end.

I suppose that if we live a thousand years or so we shall get some such protective legislation passed in America and in England.

SOCIETY PROCEEDINGS.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twentieth Annual Meeting, held at Washington, D. C., May 16 and 17, 1905.

FIRST DAY—MAY 16TH (*Continued*).

(Continued from Page 960.)

Recurrence of Ulcers.—Dr. Solomon Solis-Cohen, of Philadelphia, said that as yet we know nothing of the recurrence of ulcer after operation. Nor is anything known of the occurrence of ulcers after others have healed. An illustrative case is that of a carpenter who proved at autopsy to have only one active ulcer, though there were over thirty others that had been healed. Undoubtedly those who have a tendency to ulcer of the

stomach may very well develop another after the surgical treatment of the first one. Ulcer of the stomach often gives symptoms simulating other conditions. In a case recently seen the pain seemed to be in the region of the gall-bladder. When the patient began to vomit an operation was performed, and an ulcer was found just about to perforate. Healed ulcers often produce adhesions which may give the symptoms of an active ulcerative process by the limitation of the movements of the stomach which they cause.

Dr. B. W. Sippy, of Chicago, said that in not a few cases of ulcer of the stomach the anemia consequent upon the hemorrhage from the stomach will deter the surgeon from operating. In a recent case the hemoglobin as the result of repeated hemorrhages was only 20 per cent. The girl was extremely pale and restless, and consequently there was hesitation as to the operation. She went on to recovery.

Dr. Musser, of Philadelphia, said that hemorrhage from the stomach due to cirrhosis of the liver may simulate that from gastric ulcer and lead to unnecessary operation if operation be advised without due consideration. On the other hand, adhesions of the gall-bladder to the duodenum and stomach are not frequent as the result of cholecystitis. The history of the case will usually give some hint as to this. There has been a prolonged typhoid fever with symptoms pointing especially to the upper right-hand quadrant of the abdomen, and then a prolonged convalescence. This history helps to differentiate the condition from that of ulcer of the stomach.

Gastro-Enterostomy for Ulcer in the Stomach.—Dr. Gilman Thompson, in closing the discussion, said that surgeons no longer look for the ulcer of the stomach if it is not readily found. The main thing is to give the stomach a rest from its ordinary function by doing gastro-enterostomy. At the same time this operation provides the best safeguard against a recurrence of ulcers. Undoubtedly it is in the course of ordinary function that ulcers come. If the stomach is not asked to perform its function ulcers will be avoided. In cases where adhesions simulate the symptoms of gastric ulcer the breaking up of these adhesions will relieve the symptoms. Surgery, therefore, can be looked upon as likely to do great good in doubtless cases. Dr. Thompson pleads only for more readiness on the part of the physician to refer these cases to the surgeon for exploration, as well as for curative operation.

Stomach Disorders and Diabetes.—Dr. John S. Sawyer, of Cleveland, said that in not a few cases of diabetes gastric symptoms are common, and these are usually considered to be the consequences rather than the cause of the diabetic condition. In a case treated some fifteen years ago, however, for motor stagnation of the stomach, after the employment of lavage, the patient improved so much that Dr. Sawyer resolved to investigate the relationship of stomach disorders and diabetes. Since then he has treated the stomach in nineteen cases of diabetes. Nine of these have been under observation for more than a year. In all a definite catarrhal process was found. All of them were helped by lavage. The sugar content of the urine was reduced, and the patient's general health always improved. One of them, a young man who had been passing 6 per cent. of sugar in his urine, and had become very weak, now takes a Sunday stroll of twenty miles for exercise. In all there was an almost immediate reduction of the thirst and of the polyuria. In all of them, too, there was reduction in the voracious appetite. Symptoms of restlessness and discouragement disappeared promptly.

Details of Technic.—Dr. Sawyer does not believe in the use of the siphon for gastric lavage with the patient in the upright position. The patient is always made to recline and the Politzer bag is employed. During the time that the alkaline liquid, boric acid or borax is in the stomach, the abdominal wall is manipulated so that the gastric mucosa may be thoroughly washed off. The treatment is not unpleasant to patients, and the relief is so prompt as to make them welcome further applications of it. It is not employed frequently, but at regular intervals, according to the amount of catarrhal disturbance of the stomach that is present. In Dr. Sawyer's experience only one death from coma has taken place, and that in a young man who drank to excess and had been on a big drunk.

Dr. Tyson, of Philadelphia, said that this method of treatment seems to be of great importance. Personally he has not noted active gastric disturbance in diabetes. Usually they digest very well. Some of the benefit derived from Fowler's solution in many cases, and the reason for which is inexplicable, may be due.

Dr. Kelly said, in continuing the discussion, that the important consideration with regard to this method of treatment is the question whether these cases were true diabetes or only forms of glycosuria. It is not to be expected after all that lavage of the stomach should have any effect on the organic basis of true diabetes.

Dr. Solomon Solis-Cohen, of Philadelphia, said that he had often noted that an increase of sugar in the urine occurred whenever there was intestinal indigestion with flatulence and discomfort in the abdominal region. Usually this disturbance was made better by washing out the bowels. Another important question is, does lavage of the stomach lessen the acidity of the urine? Is it because the fluid used in lavage is alkaline that the treatment benefits?

Dr. Sawyer said, in closing the discussion, that alkalines are of service in the treatment of diabetes, but that he does not consider that the use of the alkaline lavage is the main element in its therapeutic effect. In one patient, after intoxication, in which diabetic coma developed, no good was effected by lavage. Undoubtedly the cases were true diabetes in the ordinary sense of the word. Sugar was present in the urine in constant notable quantities, there was polyuria, voracious appetite, an intense tired feeling, and the cases gave the blood test of Brehmer.

Nux Vomica in Hyperchlorhydria.—Dr. John H. Musser, of Philadelphia, said that in cases where there is an excess of acid in the stomach it is usually suggested that sedatives be employed. In his experience, however, an overabundance of acid in the stomach has not yielded to this treatment. He has found, however, that nux vomica produces an excellent effect. Most of these cases occur in neurotic individuals. The remedy is given in ascending doses, beginning with fifteen drops three times a day until the physiological effect of the nux vomica is noted. The young stand large doses better than the old. Susceptibility of the action of nux vomica seems to me almost in direct ratio with the years. As a rule, the symptoms of the intolerance of the drug consists of some stiffness of the neck muscles and some tendency to vertigo. As a rule, patients are not given more than sixty drops three times a day. Some years ago Dr. Musser believed in the use of massive doses of nux vomica, but this seems inadvisable. The same effects are not obtained with strychnine alone as with nux vomica, and there seem to some important elements in the natural remedy which are not in the alkaloid. This, of course, has been pointed out by French therapeutists for some time.

Dr. Tyson said that he could only confirm what Dr. Musser asserted with regard to the benefit he derived from nux vomica, though he had not noted its good effects, especially in hyperchlorhydria, but in all forms of nervous dyspepsia.

Umbilical Hernia and Abdominal Pain.—Dr. D. D. Stewart, of Philadelphia, said that umbilical hernia is, in his experience, a frequent source of abdominal pain that is unrecognized unless careful search is made for it. Sometimes the umbilical hernia may consist of only a small nodule in the linea alba. Dr. Stewart has found them no larger than the size of a split pea, yet giving distinct reflex pains with digestive disturbances referred mainly to the stomach. As a rule, these hernia, when small, are utterly ignored by the patients themselves, and, of course, are not found by their physicians unless carefully looked for. Patients are usually treated for indigestion, gastralgia, gall-stones, or even for stone in the kidney or other serious conditions.

Abdominal Tumors.—Dr. Richard H. Cabot, of Boston, gave an analysis on over four thousand abdominal tumors which had been under treatment at the Massachusetts General Hospital during the last thirty-five years. The most interesting considerations are the very large number of tumors of the liver in this list and the comparatively small number of the cases of malignant disease. Another interesting observation is that cancer of the cecum is usually a slow running form of cancer. Many of the cases of cancer in the abdominal region ran their course with fever.

Dr. Fussell, of Philadelphia, said that slow running cases of cancer of the cecum are not at all unusual, and are sometimes surprising because, when discovered, they create the impression that a fatal termination is not far off.

Dr. Thayer, of Baltimore, said that malignant disease of the liver is usually accompanied by fever, and that in two cases of sarcoma of the liver which have been under his observation the clinical picture resembled very much that of typhoid fever with relapses. Cancer of the liver often presents fever with chills, and in a recently observed case, in a young woman under thirty years, the symptoms seemed to point rather to some acute affection of the liver. Exploratory operation showed the presence of a rapidly growing adenocarcinoma.

Dr. Cabot, in closing the discussion, said that undoubtedly if the Massachusetts General Hospital admitted all cases, and especially those suffering from tuberculosis, which are now excluded as far as possible, there would be more fatty liver so characteristic of tuberculosis and more amyloid liver.

Dilatation of the Cardia.—Dr. Frank Billings, of Chicago, said that three cases of spasmodic constriction of the cardiac orifice of the stomach were presented last year. In one of these cases the esophagus dilated above the stricture held 500 c.c. The patient had been taught to pass the stomach tube with good effect on her nutrition. By a procedure invented by Dr. B. W. Sippy, of Chicago, it seemed possible now to bring about proper dilatation of the cardiac orifice so that it would remain patulous. Dr. Sippy then presented the instrument he employs for this purpose. It consists of a small rubber bag into which a rubber tube is fastened and to which a bougie may be attached. By means of the bougie the rubber bag, which is surrounded by cloth, to prevent it from dilating above and below the stricture, is passed down to the strictured part, and then is inflated. After two dilatations one patient, who had constantly before this passed the stomach tube, has been able to take her food quite normally for several months.

Renal Calculus and Simulating Conditions.—Dr. D. D. Stewart, of Philadelphia, gave the details of some cases in which renal calculi gave unusual symptoms none of which referred to the kidneys, so that the presence of stone of the kidney or ureter unless examined especially with regard to this point is unsuspected. As a rule, the most important element of the diagnosis is the presence of many red blood corpuscles in the urine. At times, when the presence of stone is suspected, operation shows that only a stricture of the ureter is present or that there are adhesions around the kidney pelvis which cause the discomfort. In some of these cases the indications are only vague, but where the discomfort is considerable the abdominal incision which enables the surgeon to expose the ureter and the environment of the kidney is more advisable than the incision in the lumbar region.

Dr. Danforth, of Chicago, in the discussion, presented a large stone which had come from the bladder, several small stones which had come from the right kidney and one larger stone which had come from the left kidney of a young woman. All of these calculi had been present without the production of any acute pain.

Dr. Tyson said that a number of cases of stone in the kidney occur without symptoms and only the most careful examination and study of patients for a considerable period will reveal their presence.

Dr. Forchheimer said that in three cases of kidney stone there were no definite symptoms in his experience, and even the X-rays were of very little help.

Dr. Frank Billings, of Chicago, said that localized pain followed by the presence of blood in the urine is almost pathognomonic of kidney stone. The X-rays have added very little to the diagnosis of kidney stone. Mistakes are not uncommon, especially in the hands of X-ray specialists who are not physicians. In one recent case a specialist in X-ray work insisted on the presence of a stone in the bladder and the lady's husband was making preparations to have the operation performed, when it was found that the shadow was cast by a bulbous pessary in the vagina.

Dr. Stewart, in closing the discussion, said that peculiar shadows sometimes recalling the presence of stone in the ureter occur and that great care is needed. In one case the calcified tip of the appendix was taken for a stone during the X-ray examination. In all of Dr. Stewart's cases the symptoms had occurred over a prolonged period.

Amendments to Constitution.—The following resolutions were voted upon and adopted:

(1) *Resolved*, That Article II of the Constitution be amended by inserting after the first paragraph of this article a paragraph stating: There shall be a class of "associate members" limited in number to 25, from which class all active members shall be elected. These associate members shall enjoy all the privileges of honorary members and each of them shall pay annual dues amounting to one-half the annual dues of an active member.

(2) *Resolved*, That the Constitution be so amended that any one who has been an active member during ten years may, at his request, be transferred by the Council to honorary membership.

A third resolution, That the Constitution be so amended that honorary members elected or transferred hereafter shall be expected to pay annually five dollars as dues in consideration of receiving the printed transactions, was defeated.

Second Day—May 17th.

Proteid Diet.—Dr. L. F. Barker, of Chicago, said that the proteid digestion remains a mystery. Just why one person can take pork chops and enjoy them, while another is made intensely miserable, yet the second may take veal cutlets without any disagreement, while the first may find them intolerable, is something that science has no explanation for. Some recent studies on the chemistry of the proteids have seemed to throw some interesting light on some of these subjects. The albumin molecule consists of monamino, diamino, and amido nitrogen for the most part. The monamino acids form the largest part of this. Leucin and tyrosin are examples of this group, but many others have been discovered in recent years by means of Fischer's analytical methods. Fischer has suggested that in fifty years we shall be able to make albumin in all of its forms. This is very different from the creation of living proteids. What is considered in these studies is the basis of life, the simple building stones out of which the complex albumin molecule is built up.

Dr. Victor C. Vaughan, in discussing Dr. Barker's paper, said that, in his opinion, all the cells of living bodies are definite chemical compounds. This theory would not solve all the life problem, but its substantiation would go far eventually to make internal medicine a science instead of an art. In the meantime certain practical applications may be hinted at. There is no doubt that patients suffering from chronic parenchymatous nephritis stand certain proteids much better than others. Dr. Vaughn has endeavored to find out which proteids produce the least irritation of a disabled kidney, and some of his experiments have been most encouraging.

The Chlorides in Chronic Nephritis.—Dr. A. O. J. Kelly, of Philadelphia, said that certain salts, and especially the chlorides, are not eliminated in various forms of nephritis, and as a consequence of their retention they attract water and so lead to the occurrence of edema. French observers have found that the addition of chloride of sodium to the diet increases edema in parenchymatous nephritis. In nephritis of arteriosclerotic origin this was not true, hence they have suggested a reduction of the chlorides in the diet of nephritic patients. They consider that the explanation of why milk diet is so good for those suffering from nephritis is that there is much less chloride salts introduced into the system. The amount of excretion of chloride is no sign of chloride elimination, since there must also be a definite idea of the intake of chlorides.

Study of Cases.—Dr. Kelly has studied with Dr. Fife, of Philadelphia, the chloride metabolism of nephritics. The patients were sufferers from anasarca. In the first case the patient weighed at the beginning of the observation 203 pounds. When salt was removed from the diet he lost weight, the weight evidently going down as the result of loss of water. Later with the limitation of salt in the diet he gained in weight and in strength and was much better than he had been before. In the second case the results were not quite so favorable, but some beneficial effect was produced. Undoubtedly in some cases patients are rendered worse by injections of sodium chloride in solution or other ways of increasing the chloride contents of their tissues. In a third case the patient was in an advanced stage of nephritis and in the stools a considerable amount of sodium chloride was found. It is evident that if any true idea of the metabolism of the nephritic patient in reference to the chlorides is to be obtained the stools also will have to be examined. Ordinarily there is very little sodium chloride in the stools and it has sometimes been considered that this element of the problem could be neglected, therefore. This investigation shows, however, that it cannot.

Conclusions.—Dr. Kelly considers, then, that there is definite evidence that sodium chloride is retained in the tissues of patients suffering from nephritis and that as a consequence of this there is also a retention of water. If put on a salt free diet many patients will undoubtedly be benefited, at least as regards the disappearance of their edema. On the other hand, the use of salt injections and of hypodermoclysis is inadvisable in nephritic patients.

Chloride Retention.—Dr. Billings read for Dr. J. L. Miller, of Chicago, a paper in which chloride retention in patients suffering from nephritis was made very clear. When salt is given there is an increase of the edema. The difficulty sems to be an increase in osmotic pressure. Hence in these cases the patient loses less water by perspiration and through the lungs. Dr. Miller's study was experimental on a series of cases to whom were given a certain amount of sodium chloride in order to determine what the effect would be.

Dr. Alfred Stengel, of Philadelphia, in discussing these papers, said that undoubtedly in Dr. Kelly's first case there was very great improvement. This, however, might have been due quite as well to his own therapeutic efforts as to Dr. Kelly's use of a salt free diet. As a matter of fact, there is no good index of the efficiency of the kidney at the present time. The presence of albumin in the urine does not furnish such an index, neither does the determination of the freezing point of the urine. It is possible that the elimination of sodium chloride may be a helpful element in this matter.

Dr. F. Kinnicutt, of New York, said that the salt free regimen had been tried at the Presbyterian Hospital, in New York, and had proven satisfactory.

Dr. Edsall, of Philadelphia, said that it is possible by giving sodium chloride in excess to overtax an incompetent kidney. Some patients react very well to an increased amount of salt, while others do not. Hence the importance of not advising hypodermoclysis for all cases irrelevantly. It is doubtful whether the retention of chlorides in the system will be of much diagnostic value.

Dr. Meltzer, of New York, said that the construction of this theory of chloride retention without any proper examination of the stools of patients investigated, shows how careless are some of the methods of investigation. Undoubtedly sodium chloride controls osmosis and this constitutes the main reason for the benefits observed in certain cases.

Dr. Kober, of Washington, said that many years ago Dr. Hughlings Jackson, of London, had pointed out that in pneumonia there was a retention of chlorides in the system. Later on, as a convalescence asserted itself, the chloride elimination was reestablished. It would seem as though the irritation of the kidneys by the toxins of the disease had produced an insufficiency of the kidney which prevented it from eliminating chlorides.

Dr. Cabot asked if there is anything in the present scientific knowledge of chlorides in the system to discountenance the use of large amounts of salt which is a fad with some people.

Dr. Sternberg said that an officer of the army had once filed a report with him claiming that he himself had been cured of serious nutritional disturbances by removing all salt from his food and had had good success in the treatment of others in the same way.

Absence of Salt in Epilepsy.—In answer to a question from Dr. Jacobi, Dr. Joseph Collins, of New York, said that in twenty-five cases of epilepsy under observation for the last two years on a diet free from salt there had been a reduction of the frequency and severity of attacks of epilepsy amounting to over 35 per cent. of improvement. These patients were one-third better than they had been under the most scientific treatment for epilepsy known before this time. A salt free diet is then one of most important elements in the treatment of epilepsy. With regard to salt for the normal individual it would seem as though he can abuse his appetite for salt with impunity just as he may abuse his appetite for other things. Once a certain amount of kidney incompetency is established, however, then he has to be careful of the amount of salt used.

Dr. Kelly, in closing the discussion, said that he did not know what effect was produced on healthy persons by the presence or absence of salt in the diet. Undoubtedly some sufferers from nephritis are benefited by the removal of most of the salt from the diet. It must not be forgotten that when there is retention of the chlorides and when the kidneys seem to be impermeable to sodium chloride to a large extent they may still be quite permeable to such substances as methylene blue and to the phosphates. The diarrhea of nephritis patients may be helpful in removing the sodium chloride from the system. The suggestion has been made that dairymen might withdraw salt from the diet of cattle and thus produce a salt free milk for the diet of nephritic patients.

Toxicity of Bile.—Dr. S. J. Meltzer, of New York, said that there have been many changes of view with regard to the toxic quality of bile. At first it was considered to be surely toxic, then the toxic symptoms were attributed to the impurities of the bile, and filtered bile was thought harmless. Later it was concluded that convulsions were sometimes caused by the injection of bile. More recent investigation has shown that it is rather coma that is produced. In very small doses bile produces convulsions in frogs, but larger doses produce fatal coma. When combined with strychnine, however, there is always a tendency to tetanus. Dr. Meltzer, in conjunction with Dr. Salant, has shown by a series of experiments that apparently there are two principles, one a convulsant and the other a coma producing substance in bile.

Cholemia and Uremia.—Dr. Meltzer said that formerly cholemia was considered to be due to an intoxication from the absorption of bile. As convulsions were not infrequently produced, however, it came to be considered that bile was not the most active agent, since bile produces coma instead. These later observations, however, show the presence of a convulsive element in bile. Studies in uremia seem to show, in Dr. Meltzer's opinion, that the uremic convulsions are really due to a loss of the equilibrium between poisons produced in kidney metabolism and liver metabolism which is always present in health.

Dr. Ewing, of New York, in discussing the paper, said that lesions in the liver are not uncommon in uremic conditions. Virchow first pointed out their occurrence. Dr. Ewing has been collecting livers from cases of uremia with the idea of determining how much cholemia there may be in uremia. His investigation has shown that there is probably much more than was formerly thought.

Dr. Cohen, of Philadelphia, said that there are many poisons produced within the system, and that uremia is perhaps a failure of the internal neutralization of these poisons.

Dr. Carroll, of the Marine Hospital Service, said that fatty degeneration of the liver, so common in yellow fever, is undoubtedly the cause of the comatose condition which develops in this disease. Undoubtedly puerperal eclampsia in many cases is not due entirely to the kidneys, but also to the liver. This Dr. Carroll has found confirmed at autopsies.

Xanthelasma and Chronic Icterus.—Dr. T. B. Futcher, of Baltimore, reported three cases of xanthelasma which had developed as the consequence of chronic jaundice. The yellowish patches of xanthoma had come on in the course of the liver affection. In the first place, the patient suffered from typhoid fever three years ago, which was followed by a relapse and the occurrence of cholecystitis. Two years later she suffered from the characteristic symptoms of gall-stones in the common duct. Considerable jaundice developed and persisted. During this time she developed patches of xanthoma on the palms of the hands with the characteristic yellowish chamois leather-like appearance. This affection also invaded the joints of the fingers, the elbows, the axillæ and the neck. She was operated upon for the gall-stones, and they were found to be in the common duct and removed. This was over a year ago, and a recent report from her shows that the xanthomata have all disappeared, though she had the affection in the form of nodules, as well as the flat variety. In the second case the patient suffered from jaundice for eight years, and the xanthoma developed on the palm, on the flexure of the elbow, then on the extensor surfaces of the joints, and finally in the shape of nodules on the buttocks. She also had them on the eyelids. Operation was refused, and at the autopsy gall-stones were found. In the third case the patient was a sufferer from hypertrophic cirrhosis, with jaundice for two and one-half years. For over a year she has had xanthoma of the eyelids. The connection between these liver spots, as they are sometimes popularly called, and affections of the liver was first pointed out by Addison and Gull. There are, however, two types of the affection. The first occurs before puberty and is congenital and inherited. The second occurs after puberty and in four-fifths of the cases is associated with chronic jaundice. Usually the affection is painless, unless considerable pressure is applied to the spots, and there are few subjective symptoms. The most interesting feature of the disease is the fact that it develops quite symmetrically in both cases. After it has once developed it rarely disappears, though in one of Dr. Futcher's cases there is such a disappearance. Xanthelasma, as it occurs in diabetic patients, usually disappears with the disappearance of sugar in the urine. The patches are found to consist on histological examination of a number of large multinuclear cells in the corium at the part affected. Evidently these cells are due to irritation, though by what pathological process they are directly produced is unknown.

Dr. Jacobi said that these yellowish patches which occur on the lower eyelids of the elderly seem to have some other origin. They recur if removed.

Dr. Futcher, in closing the discussion, said that in

old people on the lower eyelid there are sometimes fibrolipomatous patches which are not true xanthoma.

Calcareous Degeneration.—Dr. Adami, of Montreal, demonstrated by lantern slides the stages of calcareous degeneration in the aorta. At first soluble soaps are present, then insoluble calcium soaps are produced, and finally there are fatty and calcareous degenerations in further forms. In practically all individuals over thirty there is some tendency to the occurrence of degenerative patches in the aorta.

(To be Continued.)

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

First Annual Meeting, held in Washington, D. C., May 18 and 19, 1905.

FIRST DAY—MAY 18TH.

THE first session of a general meeting was held before an audience of about one thousand people, in the hall of the Willard Hotel. Addresses were made by the President of the association, Dr. E. L. Trudeau, of Saranac Lake, N. Y., and by the Vice-President, Dr. Wm. Osler, of Oxford, England, and Dr. Hermann M. Biggs, of New York.

Presidential Address.—Dr. Edward L. Trudeau, of Saranac Lake, N. Y., said that it was one of the proudest privileges of his life to preside at the first meeting of the National Association for the Study and Prevention of Tuberculosis, an honor that has been entirely unexpected, and that would be a source of satisfaction to all his after-life. The great white plague had been looked upon as a sort of fate, and had been faced with an Oriental fatalism that prevented its proper care and prevention. People passed by on the other side, and thought improvement hopeless. The discoveries of Villemin, of Koch and Cornet, showed tuberculosis to be a communicable and therefore a preventable disease. As the result of these discoveries, proper measures for the prevention of its spread had been taken, and as a consequence there was a reduction in the death rate all over the world. This might have seemed impossible even ten years ago, but has been accomplished by cooperation. The United States is now in touch with the vast international antituberculosis movement, and much may be expected for the benefit of its people.

Means Suggested.—The first means for the improvement of present conditions is the education of the people. The second means, that of the State. If everyone knew how great a diminution of the death rate had already been accomplished, and how much more could be accomplished, then there would be a demand for legislation that could not be resisted. As the result there would be better hygiene for the masses, which must constitute the basis of all tuberculous crusade work. The teaching in the public schools must be rather with regard to hygiene than tuberculosis itself, since otherwise, fantastic ideas of the danger of tuberculosis are apt to be acquired. Just where the danger lies must be taught, and then prevention secured. For any further improvement the most necessary condition is the early detection of the disease. For this physicians and people must be aroused to the necessity of taking the disease in time.

Vampire Quackery.—Dr. Trudeau said that the spread of education would help to crush the vampire of quackery, which now allures the poor under the mask of philanthropy and even of science. In the way precious time is lost, and the disease, from being mild and curable, eventually becomes incurable. Undoubtedly one of the duties of a National Association for the Prevention of Tuberculosis must be to bring the quack offenders against the public weal to justice. At the present time physicians need to be able to recognize incipient cases with more certainty than before. The features of incipient tuberculosis must be taught in the medical schools, for the student is apt to think only of advanced cases. Further researches are needed, too, for the purpose of securing more exact methods of diagnosis, and perhaps even of treatment, or measures for the prevention of the disease. Fortunately, the era of original research is beginning in America, and much may confidently be expected.

Education With Regard to Tuberculosis.—Dr. William Osler said that there are two features of knowledge, one its acquisition and the other its application. At times the amount of knowledge on a subject may be so enormous as to be embarrassing. As the Poet Laureate said, "Knowledge comes, but wisdom lingers." There are three classes who need education with regard to tuberculosis: the public, the medical profession and the patient. The public may now be said to be awake to the situation with regard to tuberculosis, awake and sitting on the edge of the bed, but needing to be dressed in the garments of applied knowledge. For the further education there are three duties: First, the enactment of good laws; second, the proper care of early tuberculosis cases, and third, the care of hopeless cases.

Good Laws—New York Laws.—Dr. Osler said that the synonym for good laws with regard to tuberculosis is New York laws. In spite of the frivolity and size of the great city it has secured excellent legislation with regard to tuberculosis, much of which is due to the distinguished vice-president of this association, here present on the platform. New York has set the pace for others, and is an exemplar that may well be studied. With regard to the care of early tuberculous cases, this may be accomplished by private or public beneficence. Undoubtedly it constitutes am important public duty at the present time. The care of hopeless cases is, however, the most important matter for the public, since it is from these that the disease spreads with greatest intensity.

Education of Profession.—This is quite as important as the other phases of the tuberculosis problem, and the most serious need is the early recognition of the disease. Far from being easy, this is a difficult problem. The profession has not always recognized this fact, however, and open confession is good for all. The education must begin with the medical students, who must be taught to recognize incipient cases. Unfortunately, the whole problem of the teaching of infectious diseases is becoming serious. Institutions for these diseases near medical schools are needed, but as soon as an attempt is made to erect one, public opinion is up in arms. This is unfortunate. Acute cases of tuberculosis should at least be seen in the hospitals of medical schools, and they usually get there unrecognized in spite of the most careful supervision. Early cases of tuberculosis should also be treated in such hospitals in order to show what can be done for them. Excellent results can be obtained, and the lesson is an invaluable one for nurses. There should be a tuberculosis dispensary in connection with every large hospital, for the sake of its educational value. Tuberculosis patients should be encouraged to come, and district nurses should be supplied to visit their homes.

Education of Patient.—This is often a most trying factor in the treatment of early cases. The friends of a patient say, "For heaven's sake, don't tell that girl that she has tuberculosis, or it will surely kill her." There is no greater mistake than the keeping from the patient of a full knowledge of her condition. (Applause.) The discipline necessary in order to carry out the measures required for open-air treatment will be easy if the patient realizes the danger that is ahead. The depression will last only for a time, and the reaction is good. In closing his address, Dr. Osler said that Dr. Trudeau's work had been an inspiration to all, and his courage, under circumstances that few could have overcome, is the admiration of all those who know it. He has the boundless enthusiasm of the true scientist for study. His work mainly has transformed the Adirondacks from the forbidding wilderness it was when he went there into the great homing place for the ailing. While teaching the world all that can be accomplished by personal, loving, affectionate care of patients, he has also shown the true humility of a great man.

Infectious Disease Hospitals.—Dr. Hermann M. Biggs, of New York, said that he could not introduce his remarks better than by a discussion of the question of the supposed dangers from infectious disease hospitals. On North Brother Island, in New York City, all the infectious diseases of the city are housed, and with them from 70 to 80 cases of tuberculosis. The wards for the tuberculous are not more than 30 feet from the pavilion in which scarlet fever and diphtheria are under treatment. There is little restriction of movement. This has continued now for more than two years, and not a single infectious disease has been transmitted to a tuberculous patient. The public outcry against the erection of infectious hospitals still continues, however. On Manhattan Island the reception hospital for infectious diseases is within 400 feet of the most densely populated region on the globe. Notwithstanding this, there has never been a single case of the communication of an infectious disease to this surrounding tenement-house population.

Enforced Registration of Tuberculosis.—There is agreement now that enforced registration of tuberculosis is advisable. Except in New York, however, and a few smaller cities, it is not enforced. Many cities have laws in the matter but no action is taken. In New York the Board of Health has an advisory board, consisting of the most prominent physicians in the city. These give confidence and enlist the earnest cooperation of other physicians, since it is known that health regulations are agreed to by them. Another method that has been found to make registration easier in New York, is the free bacteriological examination of sputum. This gives a return to the physician for the trouble of reporting his tuberculous cases. The first year only 500 specimens were examined. Last year 17,000 specimens were examined. This year, according to present statistics, over 20,000 specimens will be examined. There are 250 depots for the collection of sputum, to make the physicians' work easier. While it is required to report the disease, it is not considered contagious, but only a communicable affection. It is insisted that there is no danger if simple precautions are taken. In 1904, 19,000 cases of tuberculosis were reported, some of them, of course, duplicates.

Registration Regulations.—Registration to be successful must have certain safeguards. It must not involve publicity. The Board of Health does not communicate directly with the patient. The communication is with the physician, who is asked to give his patient the information that the Board of Health considers necessary for the prevention of the spread of the disease. The physician is also asked to notify the Board of Health if the patient gives up treatment, or removes from one portion of the city to another, or from one house to another. This is to enable the Department to carry out proper measures of disinfection. In this way physicians have gradually come to recognize that the Board of Health can be a help to them, and is not merely a bittersome city department requiring more work. Every year sees more and more ready cooperation between the medical profession and the authorities in these matters. In time statistics will be able to show exactly the condition and the location of cases of tuberculosis, and to recognize where the greatest danger of contagion is, and consequently to control it.

Dr. Biggs, in closing his address, added his compliment to that of Dr. Osler, for the distinguished president of the Association, Dr. Trudeau, who has done so much to enable the work of public education in America with regard to tuberculosis to be carried on successfully. His demonstration in this country of the curability of the disease is one of the most encouraging aspects of the American scientific work on this subject.

Clinical and Climatological Section.

In the absence of Dr. Norman Bridges, the Chairman of the Section, Dr. S. G. Bonney, of Denver, the Secretary, presided.

Turban's Scheme of Classification.—The first business was the presentation of the report of the Committee on Clinical Nomenclature. They recommended the adoption of Turban's scheme of classification and description of patients for the purpose of comparative statistics. At present the variety of terms used do not allow medical men to know just what is intended by colleagues in the description of cases of tuberculosis. Turban's scheme is very generally employed abroad and with some modifications will doubtless prove a source of time-saving as well as a help to the avoidance of confusion. It is suggested that all who discuss cases of tuberculosis should make use of it in order to make their writing more definite and more generally available for statistical purposes.

Turban's Scheme for a Method of Comparative Statistics for Pulmonary Tuberculosis.—Suggested for use in the National Association, with the addition of the scheme offered by the Committee:

(1) Extent of disease in the lungs? I, II, II.—For exact definition, see below.

(2) How long consumptive? Period to date from the observation of the first clinical symptoms, *e.g.*, stubborn coughing, hemoptysis, pleurisy, loss of flesh, etc.

(3) General condition of the patient? A, X. A—favorable; X—unfavorable.

(4) Digestion? B, Y. B—unimpaired; Y—impaired?

(5) Pulse? The pulse is to be registered every morning and evening, the patient resting.

(6) Temperature? F, f, t, n. F—maxima for the day over 101° F.; f—maxima for the day from 99° to 101° F.; t. n.—normal temperature (mouth).

(7) Tubercle bacilli? +, O. +—tubercle bacilli present; O—tubercle bacilli absent.

(8) Tuberculous complications? Name of the organ suffering from tuberculosis.

(9) Other complications? Name of the disease.

(10) Result of treatment? *Vide* Classification of Results of Treatment proposed by Committee on Nomenclature.

Definition of the Extent of Disease in Lungs, According to Turban:

I. Slight lesion extending at most to the volume of one lobe or two half lobes.

II. Slight lesion extending further than I, but at most to the volume of two lobes; or severe lesion extending at most to the volume of one lobe.

III. All lesions which in extent of the parts affected exceed II.

By "slight lesion" we understand disseminated centers of disease which manifest themselves physically by slight dullness, by harsh, feeble, or bronchovesicular breathing, and by râles.

By "severe lesion" we mean cases of consolidation and excavation such as betray themselves by marked dulness, by tympanitic sounds, by very feeble bronchovesicular, bronchial, or amphoric breathing, by râles of various kinds.

Purely pleuritic dulness, unless marked, is to be left out of account; if it is serious, the pleurisy must be specially mentioned under the head of "tuberculous complications."

The volume of a single lobe is always regarded as equivalent to the volume of two half lobes, etc.

Classification of Cases and Results of Treatment in Pulmonary Tuberculosis, to be used in Connection with Turban's Scheme, as prepared by the Committee:

Progressive (Unimproved). All essential symptoms and signs unabated or increased.

Improved.—Constitutional symptoms lessened or entirely absent; physical signs improved or unchanged; cough and expectoration with bacilli usually present.

Arrested.—Absence of all constitutional symptoms; expectoration and bacilli may or may not be present; physical signs stationary or retrogressive; the foregoing conditions to have existed for at least two months.[1]

Apparently Cured.—All constitutional symptoms and expectoration with bacilli absent for a period of *three* months; the physical signs to be those of a healed lesion.

Cured.—All constitutional symptoms and expectoration with bacilli absent for a period of two years under ordinary conditions of life.

The disease is to be considered incipient and of favorable prognosis, if there is but slight initial lesion in the form of infiltration limited to the apex or a small part of one lobe; if no tuberculous complications are present, and slight or no constitutional symptoms (particularly including gastric or intestinal disturbances or rapid loss of weight); if there is slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours, especially after rest; if the expectoration is usually small in amount or absent, though tubercle bacilli may be present or absent.

The disease is to be considered moderately advanced, if there is no marked impairment of function either local or constitutional; if the localized consolidation is moderate in extent with little or no evidence of destruction of tissue; or disseminated fibroid deposits and no serious complications.

1 The length of time mentioned is, of course, somewhat arbitrary, but is intended to cover the cases, which frequently occur, where the patients leave a sanatorium for various reasons, contrary to advice, after a stay of a few weeks, although all active symptoms may have ceased completely soon after entrance.

The disease is considered to be far advanced if there is marked impairment of function, local and constitutional, or if the localized consolidation is intense; or if there are disseminated areas of softening; or serious complications.

Cured Tuberculosis.—Dr. Victor C. Vaughan, of Ann Arbor, Mich., in discussing the report of the committee, said that the word "cured" seems out of place in reference to tuberculosis cases which are not "cured." They become quiescent or are apparently cured. It would seem better then to substitute these terms which are nearer the truth. On the other hand, it appears advisable, in order to teach the medical profession to recognize tuberculosis at the earliest possible moment, to add designations to the classification for cases of the disease with no demonstrable lesions in the lungs.

Dr. De Lancey Rochester, of Buffalo, said that, to those who know the specimens of the autopsies, the word "cured" can scarcely have a place in the terminology of tuberculosis. On the other hand, it does not seem advisable to talk of cases of tuberculosis as arrested if bacilli are in the sputum, for they may become actively virulent again at any moment.

Dr. Linthacum said that there is now a general consensus of opinion that tuberculosis is curable, and to refuse to use the word "cured" is to deny this and lose all the favorable influence of the state of mind occasioned by its use.

Dr. Raeburn, of Washington, D. C., said that autopsies upon the old show the presence of tuberculosis in 75 per cent. of the cases, even when they do not die of tuberculosis. These cases have been cured spontaneously, and were not sufferers from the disease again, even though the remains of the lesions were yet in the lungs. It would seem but right to speak of these other cases as cured.

Dr. Minor, of Asheville, N. C., said that there is a pathological cure and a clinical cure. The former cannot be hoped for, the latter is often seen. If there are no symptoms of the disease for two years, then the use of the term symptomatic cure is perfectly justified.

Dr. Lawrence F. Flick, of Philadelphia, said that tuberculosis is curable, but to pronounce a patient cured after only two years' freedom from symptoms is often to tempt him to overtax his strength and bring about a relapse. It would seem better to make the term five years.

On motion the report of the committe was adopted as read.

Tuberculosis and Life Insurance.—Dr. Chas. L. Greene, of St. Paul, Minn., said that life insurance companies have much at stake in the mortality from tuberculosis. They are not philanthropic concerns, but even as a matter of business should be ready to show interest in the crusade against tuberculosis. The most practical way for them to do this is by aiding in the dissemination of the literature of the subject.

On motion a committee was appointed to consult the medical directors of life insurance companies on this matter.

Early Diagnosis.—Dr. Arnold C. Klebs, of Chicago, the Chairman of the Committee on the Early Diagnosis of Tuberculosis, presented an introductory report from the Committee, for the purpose of initiating discussion. The main points of the report were that except when tuberculous lesions are in communication with the bronchus, there is not apt to be any tubercle bacilli in the sputum. During

this, the closed stage, then, sputum is usually small in amount, and to refuse to make the diagnosis of tuberculosis, except when bacilli are present, is risky. Among the earliest symptoms may be persistent hoarseness, for which no reason can be found in the larynx, or disturbance of the general health, with symptoms not unlike those of neurasthenia. Hemoptysis is often a very early symptom of tuberculosis, and it must not be forgotten that at times, for weeks after its appearance, there may be no physical signs in the lungs.

Physical Condition.—The physical condition of the patient must always be considered as an important auxiliary for the diagnosis of tuberculosis. If the patient is not up to weight for height, or if there is insufficient expansion of the chest, these must be considered suspicious signs. The pulse is often disturbed at a very early stage, and the temperature is disturbed oftener than imagined. In order to be sure of the disturbance of temperature, a two-hourly record of the temperature range should be kept for several days. In taking the temperature, the thermometer should be placed in the mouth which should be kept closed for five minutes in a room of equable temperature. The instrument should be selected with care. In some cases fever will be found to occur only at times of disturbance of the ordinary physical condition, as by menstruation or after exercise. The Roentgen rays have not added very much to the diagnosis of early tuberculosis, though they may be of some assistance. Retardation of respiration is sometimes noted early in the disease, and disappears later when the patient has become accustomed to the condition, as it were. The excursions of the diaphragm are limited on the affected side after the affection has made some progress, and this can readily be recognized by the X-rays, but with quite as much satisfaction by percussion or by the observation of the Litten phenomenon, the shadow of the diaphragm on the chest wall.

Percussion.—Percussion is only of service if carefully done over the whole chest, comparing both sides at exactly corresponding points. In percussing the chest the lobe of lung over the heart should not be neglected, and in estimating the position of the diaphragm the blue pencil should be used, as otherwise no proper data for comparison can be obtained. Deep percussion should be avoided, as it brings out nothing of importance, and may serve to conceal superficial lesions. Besides it is a source of annoyance to the patient.

Auscultation.—Only careful auscultation will serve to give useful information in very early cases. Râles are often present in early tuberculosis, but not constantly present. As a rule, they are much more readily observed in the morning, and may be absent in the afternoon. They are present on damp days, but absent in dry weather. They may be heard immediately after the first long breath or two, but they then disappear. The râles are likely to be more frequent during menstruation than at other times. Special attention should be paid to the apices of the lungs, to the lower borders and to the axillary region. Rough expiratory respiration over a localized area is of special significance. The quality of the salts of iodine to increase catarrhal conditions and bring out râles where they are not otherwise present, may be used for diagnostic purposes.

Causes for Failures.—Dr. Edward G. Janeway, of New York, said that failures of diagnosis are always due to lack of care in the examination and to lack of re-examination. There is always danger in making a negative diagnosis on one examination. Sometimes four or five examinations will be necessary for this. To tell patients that so many examinations are required, seems derogatory to their knowledge, to some physicians. It invalidates their position as a high priest who is able to say everything at once. Hemoptysis is undoubtedly in the great majority of cases due to tuberculosis. Physicians are too ready, as a rule, to suggest that it may be due to other causes. A striking case in Dr. Janeway's experience was that of an engineer of the Ward line of boats between the West Indies and New York. He died from yellow fever, and at the autopsy two foci of thoroughly encapsulated tuberculosis were found, one at each apex. The most careful inquiry did not elicit any history of tuberculosis at any time. After some questioning, however, his wife recalled that he had suffered from hemorrhage three years before, but had no further symptoms. Evidently his outdoor occupation has enabled him to throw off the disease. There is more danger of making too little of tuberculosis than too much.

Other Causes of Hemorrhage.—There are, of course, other causes of the spitting of blood. One of these is malingering. Dr. Janeway recalls the case of a student who pricked his gums to make them bleed, and as a consequence, was sent on a long vacation to Europe for the sake of his health. During war times, such experiences are not unusual. Mitral stenosis must not be forgotten as a prominent cause of hemorrhage, which in this case comes directly from the lungs, as if it were due to tuberculosis, though it is usually more streaky and less abundant than tuberculosis hemoptysis. Dr. Janeway considers hemoptysis as a life saver. After a pulmonary hemorrhage a patient will do anything recommended. And this enables the physician to secure the most complete cooperation. It must not be forgotten, however, that hemorrhage from the lungs may be due to specific disease. Dr. Janeway saw such a case some years ago in a young man with a history of syphilis, who was afterward carried off by an intercurrent disease, and at autopsy proved to have no tuberculosis in his lungs.

Late Diagnosis of Tuberculosis.—As a consultant to a sanatorium, Dr. Janeway has had his attention called particularly to the late stage at which many physicians of excellent ability and experience still send patients who are supposed to be suffering from incipient tuberculosis. Many of the patients prove to have the disease in a stage far beyond that which they are supposed to have, when proper for sanatorium treatment. As a rule, it is better to go on suspicion of tuberculosis rather than wait too long. In this it is better to be sure, for the patient's sake, than to be sorry. Many physicians are neglecting their patients' interest in not suggesting sufficiently early the necessity for careful treatment.

Combination of Symptoms.—Dr. F. L. Knight, of Boston, said that there is no single pathognomonic symptom of tuberculosis, and a physician can only judge by the combination of symptoms. Where a number of signs, no one of which is absolutely certain, but all of which are suspicious, occur, then the diagnosis of tuberculosis is perfectly justified. Dr. Knight considers that tuberculin tells too much. It causes a reaction in case there are any tubercle bacilli, and it is possible that the lesion may be old and inactive, thoroughly walled off, while the symptoms which are arousing suspicion may be due to some passing condition.

(To be Continued.)

NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, held February 14, 1905.

The President, J. Riddle Goffe, M.D., in the Chair.

Fibroids as a Predisposing Cause of Cancer of the Uterus.—Dr. J. Riddle Goffe presented two specimens of cancer of the uterus associated with fibroids, which he thought suggested that the fibroids might be the irritating factor in the development of the cancer, thus corroborating the work of Cullen, who had discovered in many instances circumscribed cancer in the tissues immediately underlying the fibroid tumors, in others an altered condition of the epithelium which was suspicious of a precancerous stage.

Case I.—Uterus removed by double episiotomy and vaginal hysterectomy from a single woman, fifty-nine years of age. An intramural fibroid 3 cm. in diameter presents at the fundus and in the underlying mucosa is a localized flat-celled carcinoma.

Case II.—A uterus removed by abdominal hysterectomy from a IV-para, forty-five years of age, who had been spotting after intercourse for the past five months. Menstruation had been normal up to the last period which had continued for three weeks. The broad ligaments were not diseased, and no pelvic glands could be palpated. The uterine wall is more than double its normal thickness, and the endometrium is completely converted into cancerous tissue that extends down through the cervix and on to the posterior lip. There is a small fibroid at the fundus about 1½ cm. in diameter and the muscularis is studded with very small fibroids. In as much as the broad ligaments were free, he considers this case started in the body and extended downward to the cervix. Although the cause of cancer is unknown clinically we know it is primarily a local disease, and that chronic irritations causing nutritional disturbances are a predisposing factor, as the well-known relationship between lacerations of the cervix and cancer. In virgins where there is no other irritating factor present, the concurrence of fibroids and cancer, as in Case I, seems very suggestive. The practical application of this idea to treatment would favor the opinion he had held for the past two or three years, namely, that all fibroids should be removed regardless of their size, position and age of the patient, except in very old women. As illustrating the three methods of removal, Dr. Goffe presented three fibroids: (1) Polyp of the fundus, removed by vaginal section and hemisection of the anterior wall of the uterus; (2) a fibroid of anterior wall, 4 cm. in diameter removed by abdominal myomectomy; (3) an irregular fibroid of fundus with cystic and calcareous degeneration of both ovaries removed by supravaginal hysterectomy.

Dr. W. Gill Wylie, in the discussion, expressed the opinion that patients with fibroids are more likely to have cancer of the uterus, than those without such tumors, as the clinical history of cancer shows it invariably attacks organs that are defective, degenerated or injured. He does not believe, however, in removing all such tumors: very often a curettage relieves the symptoms, and all fibroids do not grow.

Dr. W. M. Polk asked Dr. Goffe if the carcinoma developed directly from fibers of the growth or from the mucosa.

Dr. Goffe said the pathologist was unable to demonstrate the exact place of origin, but that it did not grow from the fibers of the fibroid.

Dr. W. M. Polk, then said, if it is believed fibroids are predisposing causes of cancerous growth in tissues known to be the habitat of cancer, all these growths should be removed. As a matter of clinical experience, however, the larger number of carcinomata are dissociated with fibroid growths, and few are willing to believe they are really beginning causes, nor in young women should they all be removed, meaning by that the removal of the uterus. The detection of one small fibroid, too, implies usually the presence of others, and in such minute forms of development it is practically impossible to pursue each and all for the purpose of removal.

Dr. H. J. Boldt thought Dr. Goffe had misunderstood Cullen's statements, which simply were a corroboration of the investigations of von Recklinghausen that there are myomata containing glandular structure, remnants of the Wolffian bodies, and from such elements cancer may start. This form, however, differs entirely from the variety under discussion, which does not, in his opinion, bear any causal relation to cancer. He has never had an instance of cancerous degeneration of a fibromyoma, although he has seen cancer and fibromyoma associated in the same specimen. He would only remove such tumors if giving symptoms, and by enucleation, if possible. Adenomyomata cannot be enucleated because they have no capsule.

Dr. Joseph Brettauer said that he considered the presence of carcinoma and fibroids in the same uterus to be a matter of coincidence, otherwise reports of secondary growths in other organs would be found; furthermore, considering the large number of supravaginal hysterectomies that have been done, the appearance of cancer in the remaining cervix would be more frequently seen.

Dr. A. M. Jacobus related the history of a patient, sixty-five years of age, who had an unusually large and hard fibroid polypus, projecting from the cervix, which from the offensive discharge made the diagnosis of malignant degeneration probable. A pathological report of a small portion of the tumor showed it to be a carcinoma. A subsequent report of the entire tumor showed it to be a sarcoma. A hysterectomy was refused, and now the entire lower portion of the uterus and vagina is involved in a rapidly growing mass.

Dr. H. N. Vineberg expressed doubt as to any causal relation between fibroids and cancer, otherwise recurrences would occur after their removal. If, too, one assumes that fibroids only occasionally become cancerous, one must remove every fibroid as soon as detected, and two of the oldest members have stated to-night that fibroids should not be removed unless causing symptoms—a position in which every consulting gynecologist will concur.

Dr. J. Riddle Goffe, in closing, said he had not asserted or attempted to prove that fibroids undergo cancerous degeneration, but that any irritation may be the exciting cause of cancer in tissues adjacent to the point of irritation, and as fibroids are points of irritation it is possible they may be exciting causes of cancer. The specimens presented to-night are evidences of this, and, although the causal relation has not been conclusively demonstrated, it seems better that such tumors should be removed, not necessarily by hysterectomy.

Rupture of Lower Uterine Segment with a Dilator.—Dr. H. J. Boldt narrated the history of a patient who had been dilated five hours previous to Dr. Boldt's observation preparatory to a curettage to stop bleeding following an abortion. A tear had occurred through the lower uterine segment upon the right side, followed by profuse hemorrhage and collapse. After partially rallying from the collapse, she complained of intense abdominal pain and vomiting and thirst. A laparotomy a few hours later showed a large quantity of fluid, clotted blood, and signs of a beginning peritonitis.

A branch of the uterine artery had been severed, and there was an extensive tear through the posterior reflexion of the broad ligament. A large hematoma had lifted the peritoneum from the anterior surface of the uterus; active bleeding had ceased and the right side of the pelvis was packed with gauze in such a way as to compress the vessels and to shut off the uterine cavity from contaminating the peritoneum. In spite of a saline infusion and extreme pelvic elevation, the patient died two days later.

Shock and Hemorrhage as Causes of Death Following Abdominal Operations.—Dr. Chas. C. Barrows stated that 5 of the 25 deaths in the second Gynecological Division of Bellevue Hospital during the past five years have been due to either shock or hemorrhage.

In the treatment of shock, he relies mostly upon the hypodermic use of strychnine and the introduction of salines into the circulation. He has also seen beneficial results from the intravenous injection of adrenalin chloride.

Deaths From Intestinal Obstructions After Abdominal Section.—Dr. Joseph Brettauer stated that in his own cases during the past 12 years, he had not had a single instance of this condition, due, he thought, to the strictly limited gynecological field of his material, and to certain methods of technic and after-treatment. Statistically, operations for removal of the appendages during the acute stage were most frequently followed by this condition. At that period of pelvic surgery in which the glass drainage tubes and the gauze packings were so commonly employed, it seems astonishing that ileus did not occur more frequently. From the typical picture of acute intestinal obstruction, he would differentiate a class of cases, occurring after an unavoidable and prolonged handling of the intestines, formerly called pseudo-ileus, but now more properly named "Paralytic-ileus." It may be due to an irritation of the inhibitory centre, or may be an initial symptom of septic peritonitis. The distention, nausea, possibly vomiting may be present; the pain, if due to paralysis, is not so severe as when due to sepsis, and is not so frequently recurring; but the differential diagnosis from sepsis is difficult. Prophylactic treatment should consist of short exposure to the air, avoidance of handling of the intestines and dry abdominal pads. The covering of raw surfaces with peritoneum, and the lowering of the patient to the horizontal position before closing the panital incision, so as to detect any possible displacement of the intestine through some opening in the intestine, are important means of prevention. In the after-treatment he does not think the time and manner of moving the bowels is of great importance, but he is still a firm believer in the temporary use of opiates in cases of paralytic ileus as well as in septic peritonitis.

Some Unusual Causes of Death Following Abdominal Operations.—Dr. G. H. Mallet, under the above title, reviewed the different causes of death other than those from infection, ileus, shock and hemorrhage. Non-septic pneumonia occurred seven times in 1,700 laparotomies recorded by Kelly; caused by the irritating effects of the anesthetic, or from inhalation of foreign matter. The prognosis is usually favorable. Nephritis is rarely a cause of death unless existing prior to the time of operation. He has had no case of his own. Although in hospital statistics deaths are frequently attributed to nephritis, the diagnosis is rarely verified, and if found on autopsy it has usually contributed to death only secondarily by reducing the resisting power of the tissues to bacterial invasion. Suppression of urine is usually due to ligation of the uterus, and has been done by some of our most experienced surgeons. Two cases of tetanus, reported by Dr. Coe, were mentioned, the source of which was not determined in either case. Acute dilatation of stomach has been recorded by James Hunter as cause of death in a single instance. Apoplexy in a series of 1,800 laparotomies studied by the writer has been ascribed as a cause in two instances. Embolism, representing the most important unusual cause of death, occurred six times in the writer's series of 1,800 laparotomies. In three cases the operation was performed for uterine fibroids, in one for sarcoma of the uterus, in one for cancer of the ovaries, and in one for cystic degeneration of the ovaries. There were no evidences of femoral thrombosis or phlebitis in any of the cases. A case of Kelly's of typical pulmonary embolism in which symptoms of femoral thrombosis preceded the fatal attack was referred to. He thinks pulmonary embolism is so intimately associated with femoral thrombosis that the etiology of the latter condition should be of value. Clark's analysis of 41 cases of femoral thrombosis showed the condition may follow a simple abdominal operation almost as frequently as a grave one, and that it is not of infectious origin or from traumatism of the iliac or pelvic vessels, but is a direct continuation of a thrombosis arising in the deep epigastric veins, which grows slowly. Von Recklinghausen's theory of the mechanical disturbance of the circulation is considered by Clark to offer the best explanation of its cause. In the way of preventive treatment he referred to Byron Robinson's opinion that rest for forty-eight to seventy-two hours prior to operation, and more thorough visceral drainage will aid in preventing such accidents.

Dr. W. Gill Wylie, in the discussion, thought a very large proportion of the cases defined as shock are the result of hemorrhage that has occurred during the operation.

Dr. E. B. Cragin said that the improvements in technic during the past ten years best explain the lowering of mortality after abdominal operations. Skill in the administration of the anesthetic, the omission of drainage, the pains taken to cover raw surfaces with peritoneum, have all contributed to the improvement in the results.

Dr. W. S. Stone called attention to the possibility of doing something to prevent such accidents as embolism by longer observation and more careful preparation before operation, by rest in bed, and various hygienic and dietetic measures, particularly in the presence of fibroid tumors, in which degenerative changes in the kidney, liver and myocardium are so frequently present as a direct result of the presence of the tumors. He mentioned the so-called Mahler symptom, is an increased rate of the pulse without apparent cause, as a prodromal sign.

Dr. J. Milton Mabbott disagreed with Dr. Polk's statement that he doubts the possibility of rendering the vagina sterile. He believes that it has been demonstrated, at least in obstetric practice, that the vagina is usually sterile and the normal secretion is antiseptic, the gonococcus only resisting its germicidal action. He agrees with Williams that puerperal sepsis is always introduced from without, not always however, by the attendants, but occasionally by an access of contaminated air. The use of gauze drainage would also favor subsequent infection. He thinks asepsis can be more certainly attained by a rational use of antiseptics.

Dr. L. Grant Baldwin called attention to the frequent handling of instruments, to the presence of too many assistants, and to the matter of anesthesia, as important sources of complications after operations.

Dr. Wm. M. Polk stated he did not wish to imply that

any vigorous measures should be used to make the vagina sterile, as in gynecological work it is impossible, and such effort might destroy the normal resistance of the tissues themselves.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held February 9, 1905.

The Chairman, A. Bern Hirsh, M.D., in the Chair.

Drug Addictions.—A paper treating on this subject, was read by Dr. Luther C. Peter, in which he called attention to the low percentage of recoveries, being only about ten per cent. under the most favorable treatment. Etiologically the conditions were divided into two classes, hereditary and environmental; there being in all almost every instance a neuropathic temperament which is unable to withstand temptation. Hereditary taint, he stated, might not always indicate that a former generation had been addicted to the use of the drug, but might exist in various forms, such as epilepsy, insanity, dipsomania, drug habits, etc., the individual with a weak nervous system being particularly apt to resort to drug stimulation and for these the belief was expressed that there was but little hope of cure. Under a second class were considered those cases, which required a liking for the drug through medicinal employment, and under the third class, those, who while physically and mentally strong, in the stress of mental activity, probably involving loss of rest had employed them either as a stimulant or to induce sleep, which latter class are the most favorable for treatment. The writer then took up the symptomatology of the condition referring in the morphine and cocaine user to the obtunding of the higher ethical feelings, beginning with a desire to pervert the truth and gradually leading up to the commission of flagrant crimes. The various differential symptoms between morphine and cocaine users were then enumerated. In the treatment of the condition he considered as essential to success, the complete and thorough isolation of the patient, so that the attending physician may have absolute knowledge of the amount of the drug taken, the most favorable being a private sanitarium or hospital; and, in default thereof, a faithful and conscientious nurse constantly in attendance. If the amount used is not excessive, it should be completely withdrawn, but if this cannot be done, it should be gradually decreased and at the end of two weeks absolutely withdrawn, and during the first few days after withdrawal large doses of hypnotics should be given, including the bromides, sulphonal and trional, but excluding chloral on account of its depressing effect on the heart; hypodermics of codeine may be employed, and the mental effect hypodermics of cold sterilized water when necessary. Absolute rest, forced feeding, massage, electricity, heart and general tonics are requisites for success. Caffeine, he stated, he had found to be of assistance, and when morphine and cocaine are used together, the morphine may be continued until the cocaine is withdrawn. In conclusion, he urged the need of private sanitariums, and laws giving power to restrain these people thereat.

Chronic Alcoholic Poisoning.—This was read by Dr. A. C. Buckley, in which he divided the cases into two classes: (1) Those in which small quantities had been taken regularly for a long period, and (2) those in which large quantities taken at long intervals; and stated that upon the etiology must be based prognosis and treatment. The individuality of the patient should be considered, as the effect upon one is not the same as in another, and especially is a history of the exact amount taken of value. Among the symptoms enumerated were general progressive tremor of speech, insomnia, fear of persecutions and delusions. He called attention to the liability of confounding the condition with locomotor ataxia and tabes, and also with chronic lead poisoning, in which he stated the palsy always began at the upper extremities first. The distinctions between the hallucinations in this condition and those in chronic drug poisoning were that in the latter condition they are usually more of a visual character, while here they are of an auditory character.

The chairman asked the question as to when a drug or alcohol habitue would become so incapacitated that he could not execute valid legal will.

Dr. George E. Price opened the discussion and in reply to the question of the chairman felt that the point would be reached when the patient crossed the borderline from a state of sanity into a condition of insanity. The speaker stated that he believed in a large majority of the cases there existed as a causative factor an underlying neuropathic temperament, which accentuated the depressing effect of the poison, and order of frequency in which insanity followed was stated to be (*a*) alcohol; (*b*) cocaine (*c*) morphine. He stated that the hallucinations might be either auditory or visual and distinguished between the cases in which each of these occurred. In the treatment of the morphine habit, he believed it to be best to withdraw the drug slowly unless a very small amount was taken, and then the treatment should be kept up until the patient is well physically. He stated that he had never found any drug that was exactly a specific and that each case should be treated symptomatically, and that atropine, caffeine and strychnine had been of value. As distinguishing differential factors between alcoholic paresis and general paresis were mentioned, sudden onset of the attack, arterial sclerosis, etc.

Dr. Max Bachrach stated that the differentiation between general and alcoholic paresis, while quite difficult was a very important one, although the symptoms are of much more rapid development in alcoholic than in general paresis. The treatment, he believed, should be directed chiefly to rest stimulation and massage.

Dr. Howard S. Anders believed that there were many cases in which the factor of chronic alcoholism was overlooked in the diagnosis. He felt that there was a great responsibility in reference to the giving of the various drugs resting on the profession, and directed attention to the large number of the habitués who were physicians, and particularly referred to the cases in which the habits both as regards drugs and alcohol had been contracted by administration as a medicine.

Dr. Wilmer Krusen referred to the case of a woman between sixty-five and seventy years of age, who had acquired the habit of taking 65 to 70 grains of antipyrin every day. He also referred to women subjected to abdominal operations who had become opium habitués owing to their sufferings, and the marked difficulty experienced in the postoperative treatment.

Dr. T. Turner Thomas emphasized the importance of the physician having absolute control of the patient, if he is to secure the best results and felt that a law providing for the compulsory detention thereof would be advantageous. He then discussed in detail the effect of alcohol upon patients subjected to surgical procedures, and also the wrist and ankle drop.

Dr. Frank C. Hammond referred to the case of a woman who had been under his care for some time, who works in the morphine packing room of a laboratory, who suffers about every four to six months from headaches, pains and diarrhea, for which symptom opium

is the only drug that gives any relief. She also states that on Sundays when she is away from work she feels very poorly and much better when she returns again on Monday. He also cited, as showing the necessity for very close observation of these patients, a case in which a morphine habitué, who had voluntarily committed herself to an institution for treatment, concealed the drug in hems in cuffs of her night dresses.

Dr. William H. Good believed that the foundation of the drug habit in many instances is its administration in a medicinal way. In the treatment of acute alcoholism he has secured good results by the use of apomorphia.

Dr. H. Brooker Mills felt that the acute alcoholics could not be absolutely classed among the degenerates, and believed that the degenerate condition was due not to the alcohol alone, but also to the methods of life, etc., which the patient was pursuing. He stated that he had secured good results from a mixture which he had found in use in St. Joseph's Hospital, consisting of tincture of nux vomica, 10 drops: tincture strophanthus, 5 drops; bromide, 10 grains, and a mild bitter tonic. He stated that he had under his care at the present time, a patient who claimed to have been using nine grains of morphine daily, who is suffering intensely from insomnia, and in whom the bromides and other drugs had no effect. He also referred to a case under his care who is working in the bichloride room at Mulford's with similar symptoms to those related by Dr. Hammond.

Dr. A. M. Eaton emphasized the necessity of keeping a careful watchout for these drugs, and felt that many patients whom their physicians viewed as but moderate users of alcoholics, etc., were really using them to great excess, citing two cases illustrative of this point, one of which had stated that he was only a moderate drinker, yet inquiry revealed that he drank forty glasses of beer a day.

Dr. Harry Löwenburg referred to the case of a patient, forty years of age, who when the morphine was withdrawn exhibited intense symptoms, but under the influence of large doses of cannabis indica and monobromated camphor, and under rest, massage, and forced feeding was entirely free from the drug for weeks, when she was taken from the hospital and afterward relapsed and is now confined in a sanitarium.

Dr. Luther C. Peter, in closing, referred to the fact that the drug and alcohol affect the weakest muscles first, as evidenced by the toe drop in alcoholic and by the wrist drop in lead poisoning. He felt the line of demarcation between the mental capacity and mental disability of these patients was an exceedingly fine one.

Dr. Buckley, in closing, referred to the fact that accompanying the nervous lesions in the alcoholic patient, there were usually cardiovascular changes.

JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Regular Meeting, held February 20, 1905.

The Cure of Uterine Cancer.—Dr. John G. Clark, of Philadelphia, reviewed the recent literature on this subject drawing conclusions as to operative treatment from the statistical studies which had been published. Radical and complete operation had aroused, Dr. Clark said, bright hopes as to the solution of the problem of the treatment of cervical carcinoma. The ultimate results had, however, been disappointing and led the speaker to take a pessimistic view as to the value of the complete operation. Up to the time of the publication by Dr. Clark of a review of the experience of the Johns Hopkins Hospital with uterine cancer, vaginal hysterectomy had been the operation done there; and the results of a series of 48 cases, though as good as in any hospital were distressingly bad. It was then suggested that the uterus ought to be treated as the breast was and an attempt was made to adapt the Halsted procedure for breast and axilla to the uterus and pelvis. Experience with this operation had, however, not given the results hoped for and Dr. Clark did not think that complete dissection of the pelvis offered much for the future. Absolutely complete removal of all the glands was impossible; the prognosis might still be bad even if all the glands were removed; a large proportion of patients are quite inoperable when seen at the clinic; and death has usually been from local recurrence. These facts do not warrant one in expecting results in uterine cancer similar to those which have been obtained in breast cancer. The composite experience of various operators has also offered nothing to show that the complete operation accomplishes enough to offset its very much greater primary mortality. Reese, among the early writers, thought metastasis an early phenomenon and advocated complete glandular removal. Cullen and others said that metastasis to the glands did not take place early; but Wertheim studying serial section found the glands involved in 31.7 per cent. of all cases and claimed that many metastases had been overlooked by others. Schauta, who advocates radical removal of the growth and not a prolonged search for metastases, divides the pelvic glands into six groups—the sacral, the iliac, the aortic, the celiac and the deep and superficial inguinal. Groups 1 and 2 are operable; groups 3 and 4 inoperable; while groups 5 and 6 did not usually enter into the question. Schauta reported 60 cases with 11 deaths, the prognosis varying notably with the site of the glandular metastases. He found also that the extent of the disease was no criterion at all of the extent of the metastasis; and that the *size* of glands was of no clinical value in deciding on whether or not they were involved. No one has yet explained why some early uterine carcinomata metastasize while other late ones do not; nor why certain glands may be skipped by the metastasis; nor why large glands may be free from cancer while small neighboring ones are involved. It is probable that not the gland alone but all the lymph vessels, veins and surrounding tissues offer routes for the growth. Kundrat has shown that the growth may take place in several ways: First, by mass growth from the cervix, usually circumscribed, but in some cases with finger processes; second, association of circumscribed growth with metastases; and third, combinations of 1 and 2. Wertheim, in his 1901 report, said that unless the glands were enlarged they need not be removed. This is now known to be incorrect, but removal of glands, at any rate, is of prognostic and not of curative value. Dr. Clark's own opinion is that more is lost than gained by an attempt at complete glandular removal—a prolonged procedure with high mortality. While he thought the complete operation ought to be given a good trial by careful and competent men he did not expect much from it and personally never did the complete operation—removing all the growth and as much neighboring tissue as possible by means of the cautery (abdominal incision) but making no attempt to get out the glands. Olshausen, who uses vaginal hysterectomy, has reported a series of over 600 cases, 31 per cent. of which were operable and 18 per cent.

well after five years. As to the future, something might be hoped for from the work being done to develop treatment other than surgical. From the operative standpoint the outlook was not bright. It was absolutely necessary to have the diagnosis made early—when the cases could be saved by surgery—and physicians and laity should be educated (as they have been in Germany by the efforts of Winter) to watch all symptoms at the time of the menopause and always to report promptly uterine hemorrhage.

Pathology of Cervical Cancer.—Dr. Sampson reviewed the pathology of this condition as illustrated by the cases seen at the Johns Hopkins Hospital. In the cervix cancer is more frequent than in the fundus, spreads more rapidly, is attended by a higher mortality and a lower percentage of curves. It is the most frequent form of primary cancer, is a disease of mid-life and is frequent in those who have borne children. It thus takes away valuable members of society when they can least afford to be missed. At present very little is being done by way of surgical cure. Seventy-five per cent. of the cases that come to the clinics are inoperable; recurrence occurs in three-fourths of the cases operated upon; and in practically 93 per cent. of all cases there is simply no cure. Early diagnosis and complete removal of the growth—but not of the glands which are, when removed, of prognostic value only—offer the only hope of cure, the cases being curable early and operability increasing the earlier the disease is seen. Sixteen of the Hopkins cases are living five years after the operation and four, ten years after. Dr. Cullen said that he used Wertheim's operation and did not dissect out the glands. Dr. Bloodgood said that the problem in uterine cancer was like the problem in cancer elsewhere; and that an extensive local operation should always be done. In the stomach complete glandular removal was attended by so great a mortality and the chance of recurrence was so great as not to justify the operation. In the breast the problem was simpler. There was practically no mortality from the operation; and, in the Hopkins cases over 45 per cent. have remained cured for three years. In the tip glands were easy to remove. the tumor was usually noticed early and the mortality of the operation was small.

BOOK REVIEWS.

A Text Book of Legal Medicine. By Frank W. Draper, A.M., M.D. Professor of Legal Medicine in Harvard University. W. B. Saunders & Company, Philadelphia, New York and London.

Dr. Draper has written a very excellent book. In no important particular does it differ from similar works of American and English manufacture, save in that it is up to date, and for the most part reliable. Most works of this kind are filled up with detailed descriptions of tests for detecting various poisons. The author has here dealt with the subject in one chapter and very adequately. The chapter on the medicolegal relations of the human blood is admirably handled. In his chapter on death by electricity, however, he incorrectly states that no microscopic changes have been found in the tissues of the brain in electrocuted bodies. The large recent text-book on Legal Medicine and Toxicology, by Peterson and Haines, published by the same firm, shows, in the article on electricity and lightning, a number of interesting changes in the medulla. The author neglects also to discuss the question of the physiological action of electric currents on the cardiac contractions. He takes great pains to point out the interpretation of the arborescent markings on the skin, assuming that authors who have discussed it hitherto have done so with the idea that they were due to the shape of a tree, under which the afflicted might have been standing. Such an extended explanation was unnecessary, as the interpretation alluded to is practically only a remnant of antique ideas.

The book will undoubtedly be found a very practical condensed manual.

Mental Defectives. By Martin W. Barr, M.D. P. Blakiston's Son & Co., Philadelphia.

Since the classical work of Ireland we have had very little in English dealing with idiocy, imbecility and kindred defective classes. The work of Dr. Barr will come not only with the authority of a long institutional experience devoted to this class of work, but with that of a sympathetic and gifted observer who has made more than a custodial establishment of the institution committed to his care. The illustrative features of the book are particularly commendable, as are also the author's remarks on what can be done for this class of patients. The bibliography is particularly rich in suggestive titles.

The Art of Compounding. By Wilbur L. Scoville, Ph.G. P. Blakiston's Son & Co., Philadelphia.

Dr. Scoville's book has now reached this third edition. It is the best work we have dealing with this subject-matter, and little need be said regarding it at this time, save that every student of medicine should know more than something of the matters treated in this volume, and would be the better fitted for his life work if he had thoroughly studied and digested it.

Craniomuscular Origins of Brain and Mind. By Philip H. Erbes. Promethean Publisher, Chicago.

"Persons having a long occipital base, though exhibiting strong tenacity of life, are, nevertheless, very perceptive of organic sensations, as these are involved in emotion." This quotation, taken at random, illustrates in general a point of view adopted by the author. It must not be inferred, however, that this work deals with crude phrenology. It is a much more refined discussion of the general facts associated with what Darwin has termed expression of emotion in man and the animal.

The book deals with the emotions, the general phrenological relations of the cerebrum with the intellect as prehensive and constructive, and sums up the discussion of what the author is pleased to call evolutional elements.

We think that in general the book is very far from being convincing. The author has evidently dipped into scientific phrenology, but has not rid himself of a belief in the value of high-sounding terms, nor of the idea that the brain is divided up into social, preservative, prehensive, and constructive zones to which location can be given on a diagram.

BOOKS RECEIVED.

Guy's Hospital Reports. Volume LIX. 8vo, 420 pages. Illustrated. J. A. Churchill, London.

Transactions of the American Otological Society. 37th Annual Meeting. 8vo, 544 pages. Illustrated.

The Practice of Medicine. By Dr. H. A. Hare. 8vo, 1110 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

Thyroid and Parathyroid Glands. By Dr. H. Richardson. 8vo, 201 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

THE PROPHYLAXIS OF LOBAR PNEUMONIA.[1]

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PNEUMONIA being the most dreaded of all human diseases owing to its unparalleled death-rate and universal prevalence, obviously its prevention becomes a subject of first importance.

The natural methods of diffusion of the pneumococcus are somewhat obscure, so that the prophylactic measures to be advised and encouraged are more or less empirical, but many of these have assumed importance in view of our increased knowledge of the principal ways in which the disease is propagated. The causative organism is contained in the sputum of pneumonia patients, and doubtless the most common mode of infection is by invasion through the respiratory tract. Implantation may result either from the migration of the specific organism contained in the secretions of the upper air-passages down to the alveoli at a time when immunity is reduced, or through the inhalation of particles of dried, pneumonic sputum floating in a dusty atmosphere, or finally in the act of coughing, salivary droplets may convey the virus to the bystander or attendant. Unquestionably, the virus is transmitted from infected persons principally by the dried sputum, and there can be no doubt that it is often harbored in the nasopharynx of healthy persons, and in private houses and institutions previously occupied by pneumonia patients. It may be safely assumed that direct transmission of the virus (contagion), as exemplified by house epidemics, occurs in some instances at least. My own investigations into the subject lead to the inference that the incidence of the disease is much influenced by indoor conditions, more particularly such as obtain during the cold season.

As elsewhere stated, "may not the higher incidence of pneumonia in winter and spring be due not so much to the direct effect of the low temperature, augmented barometric pressure and velocity of the winds, as to the closer confinement of the populace indoors, in the stagnant air of living-rooms from which the sunlight is excluded, and which tends to lower vitality and decrease resistance on the one hand and to favor rapid multiplication and increased virulence of the specific poisons on the other."[2] Exclusive of epidemic outbreaks, there is an evident tendency to a preponderating prevalence of the disease in overcrowded districts and among the impoverished classes. My earlier collective investigations showed that the average mortality-rate for four years in New York (considering the eight wards which are most densely populated), is 18 per cent.

"The Fourth, Sixth, Seventh, Tenth, Eleventh, Thirteenth, Fourteenth, and Seventeenth wards of New York City were embraced in this estimation. In contrast with the figures just given, eight wards, representing the most sparsely settled portions of the city of New York (*e.g.*, First, Fifth, Eighth, Ninth, Fifteenth, Sixteenth, Eighteenth and Nineteenth) gave for the same period of four years an average mortality of 14.3 per cent. It was observed in the compilation of these mortality statistics that an elimination of the epidemic periods would make the difference in percentage dependent on the population somewhat greater."[1]

The epidemiologist has properly emphasized the fact that the conditions necessary to the well-being of the specific organism are to be found in the densely populated centers of the more highly civilized communities and especially during seasons of low temperature, but like other acute infections that prevail epidemically, pneumonia shows a wave-like character on comparing different years for the same locality. It must be confessed that the medical profession is sadly in need of definite knowledge bearing upon the extracorporeal phases of the pneumococcus and its transmitting agencies. That absence of sunlight and abnormal dryness of the atmosphere, however, favor diffusion of the virus, is highly probable.

On the other hand, the question of individual predisposition confronts us and also calls loudly for a proper answer. Says Wells,[2] "that the increased prevalence of pneumonia is due to any general deterioration of the resisting powers of the populace to morbid infections, is disproved by the fact that the average duration of life has been distinctly lengthened during the period of years covered by our inquiry."

This position, however, is scarcely tenable for the reason that while there is on the whole greater physical efficiency and a higher bodily standard as well as a notable decrease in prevalence and fatality of most infective diseases, *e.g.*, phthisis, diphtheria, malaria, and diarrheal diseases, there has been an increase in incidence of pneumonia, cancer, affections of the kidneys and cardiovascular degenerations, fatty and

1 Read before the American Therapeutic Society, Philadelphia, May 5, 1905.

2 "Meteorologic Conditions in the Causation of Lobar Pneumonia," American Medicine, Vol. VIII, No. 10, p. 407 to 415, September 3, 1904, by the writer.

1 Jour. Amer. Med. Ass'n, May 9, 1903, p. 1291.

2 "Prevalence and Prophylaxis of Pneumonia," Jour. Amer. Med. Ass'n, Feb. 4, 1905.

fibroid. The increase in the prevalence of the degenerations—myocarditis, arteriosclerotic changes and kidney diseases—within the last two decades has been quite notable; and I[1] have elsewhere adduced figures which furnish strong presumptive evidence that these rank as potent, predisposing causes of lobar pneumonia. I am not prepared to deny that the pneumococcus has become more prevalent, probably more virulent, or that our opportunities for encountering the germ have been multiplied and that each of these factors is contributory to the increased prevalence of pneumonia. It is well-known at present writing that the pneumococcus is commonly found in the nasopharyngeal secretions of healthy persons for long periods of time, and that one or more of the usual predisposing conditions may render the specific organism infective or pathogenic. Wells examined the secretions from the respiratory passages, oftenest from the throat, in 135 persons, and found the pneumococcus present in 62 or 45 per cent. Says this writer, it is obvious that the "pneumococcus-laden secretions from these parts extruded in such manner that they find entrance, as spray or dust, into the respiratory passages of other and unaffected persons." It is only necessary for such healthy persons to develop predisposition which may be brought about by exposure to extreme heat or cold, acute or subacute catarrh of the naso-pulmonary tract, or as the result of alcoholism and the various degenerations already mentioned, in order to excite bacterial invasion of the pulmonary tissues and thus produce the pneumonic process. It is to be recollected that the bed-clothes, garments, carpets or furniture may become soiled with pneumococci-bearing sputum not only during an attack of pneumonia but also during health, and more especially by those suffering from coryza or acute bronchitis.

From the foregoing facts it is clear that the most efficient prophylaxis for pneumonia in the present state of our knowledge must have reference to the accomplishment of four main objects: (1) To overcome individual predisposition; (2) the prompt and thorough disinfection of the sputum and secretions of the upper respiratory tract; (3) isolation of the patient especially from the debilitated, and disinfection of the sick-room together with its contents after death or recovery, and (4) the observance of certain public measures.

1. This embraces protection of the body from extremes of temperature and dampness, by means of woolen underclothing. On the other hand, excessive clothing is to be avoided. While prolonged exposure during the cold, inclement seasons is fraught with danger, careful, judicious "habituation of the body to cold air and cold water" becomes at once an efficient and successful prophylactic measure. In the various degenerations referred to, which are slowly but steadily progressive as a rule, our efforts must be directed toward the maintenance of the highest degree of nutrition attainable. This remark applies with peculiar force to aged persons, who are peculiarly susceptible to the pneumococcus. The aim should be to improve the general condition of the patient principally by hygienic and dietetic means. The environment should be made as favorable as possible; an out-of-door life in a favorable climate, an abundance of nutritious and easy digestible and assimilable food, are required first of all. On the other hand, irregular habits of body, immoderate exercises of mind, worry and passionate emotions and appetites should be regulated and alcoholic drinks avoided. Granting that the augmented prevalence of visceral degenerations, particularly of the cardiovascular system and the kidneys, is responsible to an extent for the greater incidence and morbidity of pneumonia, it is clear that efficient prevention must begin with a correction of the mode of life of the American populace. In other words, we are living in an era characterized by undue devotion to business activities, by excesses in society affairs, and club life,—social conditions on which cardiovascular and renal degenerations largely depend. In my opinion the weak and debilitated should employ a suitable tonic composed of strychnine, quinine and gentian during the pneumonia season—winter and spring. It is equally important that this class of patients be not unduly exposed to the danger of infection. The avoidance of prolonged exposure to cold or dampness following bodily fatigue, is vitally important. Existing catarrhal affections of the respiratory tract should be actively treated without delay, especially during the cold seasons. All obstructive lesions of the nose should be removed. In this way mouth-breathing during sleep, which favors migration of pneumococci and other organisms from the throat to the air-cells, is minimized.

In this connection too much stress cannot be laid upon the importance of constant and systematic ventilation of the living and sleeping apartments. As before stated, there is a tendency to a preponderating incidence in overcrowded districts and among the impoverished classes whose illy ventilated houses favor the rapid multiplication and increased virulence of the pneumococcus. Per contra, it may be safely affirmed that the poison is attenuated or weakened in summer by the free circulation of air when the windows and doors of dwellings are kept open. This fact explains, in part at least, why the number of cases diminishes annually during the spring and summer months, reaching the minimum prevalence in the month of August. Lack of ventilation also lowers resistance, particularly among those who seldom take the air. Although science is unaware of any rôle played by insects in the transmission of the pneumococcus, yet from what is known on other grounds it is well to exclude them from the sick chamber.

1 "Social Conditions in America in Their Relation to Medical Progress and Disease," Journ. Amer. Med. Ass'n, May 9, 1903.

2. The prompt and thorough disinfection of the sputum and secretions of the upper respiratory tract. Mention has been made of the fact that the pneumococcus is present in the secretions from the nose and throat of nearly one-half of the urban populace. The sputa of all persons also contain a considerable variety of pathogenic germs. There can be no doubt that the advent of smooth, asphaltum, pavements has been productive of clouds of dust hitherto unknown and these obviously favor the diffusion of specific micro-organisms. D. H. Bergey[1] has emphasized the effect of dust in lowering the vitality of the mucous membranes of the respiratory tract and thus facilitating the invasion of these tissues by the bacteria when inhaled subsequently. The modern "machine," or automobile, stands at the very head of our dust-producing methods of transportation. It follows that more thorough and efficient cleaning, coupled with regular, daily, sprinkling of the streets is the best mode of safeguarding the public from the baneful influences exerted by a dust-laden city atmosphere. In all municipalities street-cleaning should be attended to by the health authorities whose experience and training enable them to appreciate the danger to the public health of dirty, dusty streets.

A prophylactic measure against pneumonia and other diseases of the respiratory tract is rigid cleanliness of the nose, throat and mouth. This should be followed by the application of a mild disinfectant solution, but the latter is never to be employed to the exclusion of previous cleansing of these cavities of any accumulations of secretion that may be present—a prophylactic measure of the utmost value and one that should be universally practised. Says Wells, "when it has been demonstrated that the nasal, pharyngeal, and oral secretions contain the pneumococcus, efforts at cleanliness of these cavities must be particularly well directed and maintained."

The sputum should be thoroughly disinfected and then promptly destroyed by burning. The patient must be instructed to expectorate into a spit-cup or other suitable receptacle containing an efficient disinfectant, *e.g.*, a five per cent. solution of carbolic acid or a solution of mercurial chloride (1/2,000). Finkler[2] recommends the following method of sterilizating pneumonic sputum: Into the spit-cup is poured a solution containing three per cent. each of caustic potash and borax, which is colored red by a trace of phenolphthalein. In this alkaline solution the sputum is completely dissolved. There is then added enough of a solution of hydrochloric acid and corrosive sublimate (strength not stated) to decolorize the red alkaline solution, and when this has taken place the cup is emptied. Certain writers have recommended that the sputa be discharged upon rags, which are to be burned before they become dry. I do not advise this method of collecting the expectoration inasmuch as it affords opportunity for soiling the bed- and body-linen as well as other objects, and thus facilitates the dissemination of the pneumococcus. The sputum that clings to the mouth, teeth, or mustache of the patient, as well as that which may accidentally soil the body- or bed-linen at the time of expectoration, should be wiped with a cotton or other suitable cloth, moistened with a disinfectant solution and then quickly burned.

In the case of pneumonic patients and in those known to harbor the pneumococcus in their respiratory tract, Wells recommends that a protective cloth or other suitable filtering material should be worn over the mouth and nose to prevent accidental transference of the virus by the acts of coughing and sneezing. At all events, a cloth moistened with a disinfectant solution should be held before the nose and mouth during the act of coughing or sneezing, so as to prevent the emission of the pneumococci-laden salivary droplets into the surrounding atmosphere. In this connection the assumption is justifiable that universal and thorough sterilization of pneumonic sputum would be followed by a lessened incidence of the disease within a brief period of time. Unfortunately, the medical profession has not as yet been aroused to a realizing sense of the immense importance of this prophylactic measure, and it is a reproach to that guild, of which we are justly proud, that the known means of prevention are either neglected or too carelessly enforced. It is perfectly feasible to adopt a line of procedure that will diminish the prevalence of this highly mortal disease. I consider the question of thorough disinfection of the sputum, the bed- and body-linen, the mattress and room occupied by the pneumonia patient a prime requisite, but I have a fixed belief that these matters, like the sputum, do not receive the rigid care and attention which they richly merit by the average general practitioner, and it may require municipal regulations to carry out certain measures that are more or less preventive of the spread of the disease. This brings up the question whether or not pneumonia should be classed as a notifiable disease. The desirability of placing pneumonia on the list of returnable diseases has been maintained by certain writers and I feel justified in assuming that this course would be the means of cutting off avenues of transmission of the poison and probably the arrest of extensive epidemic prevalence of the disease. This recommendation, however, implies a bacteriologic diagnosis in all instances.

3. From what has been stated regarding the importance of sterilizing pneumonic sputum, it follows that isolation of the patient must form an active prophylactic factor. Pneumonia obeys the laws of acute infectious diseases and there is incontestable proof that it is feebly contagious. B. Robinson[1] and other recent writers, insist upon the fact that the pneumococcus is directly trans-

1 "Neglected Prophylactic Measures Against Diseases of the Respiratory Tract," Medical News September 5, 1903.

2 Quoted by F. P. Henry, Philadelphia Medical Journal, Feb. 14, 1903.

1 Lancet, April 16, 1898.

missible. The occurrence of house epidemics is not uncommonly observed and it is probable that this form is spread by contagion. After leaving his sick chamber, the room occupied by the patient should be carefully fumigated. It is vitally important that the bed- and body-linen be frequently changed during the course of the attack, and upon removal from bed, boiled for half an hour. The sputa quickly become desiccated and form a source of contamination of the house air, floors, sidewalls and furniture. Such rooms are centers of infection to the debilitated or even to healthy persons whose resistance is temporarily lowered, and should be thoroughly fumigated with formalin after the patient recovers. Finally, it is obvious that united intelligent effort on the part of the profession, would successfully cut off this the principal channel of communication between the sick and the healthy for the pneumococcus.

4. Public health authorities could accomplish valuable results by issuing rules which should govern the management of cases of pneumonia, and the best means of preventing the transmission of the disease. In particular, attention should be drawn to the question of systematizing the details connected with the subject of the prevention, and also stating simple plain facts about the way in which the disease is spreading. I should strongly favor the scheme of placing appropriate printed matter in a form suitable for preservation in the homes of the people at the beginning of the pneumonia season, and mural placards should be advised and encouraged. Of course, all practitioners of medicine should be provided with copies of these rules and it should be obligatory upon them to carry out the instructions of the health authorities. Surely, the matter is of sufficient importance to compel the most serious attention to the subject not only on the part of the profession and sanitary boards, but also of the laity.

It should be definitely understood by the populace in general that the heavier alcoholics are toxic in their effects, lowering the vitality and thus inviting infection during the pneumonia season. Vital statistics leave no room for doubting that the diseases caused by alcoholism, such as chronic infections of the kidneys, blood-vessels, heart, and cirrhosis of the liver, all predispose markedly to the fatal malady under consideration. Besides these, there are many questions connected with the subject of individual predisposition to which State and municipal boards of health should seriously turn their attention with a view to enlightening the general public.

There is another important element to consider; I refer to the more efficient ventilation of our office buildings, theaters, courts of justice, manufacturing establishments, churches, public schools, and passenger and street railway cars. In all of these places, in which persons habitually congregate in large numbers, and infectious diseases are propagated by the stagnant, impure air, protection of the public against the grave danger of contracting pneumonia and other infectious diseases should be provided by boards of health, to which should be given unlimited powers.

As stated above, it should be the duty of Bureaus or Boards of Public Health to look after street-cleaning and street-sprinkling, and to them should be given full executive authority. It requires no lengthy argument to indicate conclusively that this important work naturally forms a portion of the sanitary administration of our municipalities. For example, the extent to which the public is compelled to inhale bacteria-laden dust in our public highways in Philadelphia, should not be permitted to continue without a strong protest by the local medical profession and hygienists. The sanitary requirements of a city can only be met by a system of street-cleaning and automatic sprinkling under the immediate control of specially trained health authorities.

In conclusion we must look to the possibility of a successful municipal control of an effective prophylactic system. Nothing like a full consideration of this aspect of the subject can be given in the present article. It offers many difficulties, but the arguments of greatest weight are on the side of rules and regulations to be enforced by municipal and State health authorities. And I would urge upon my hearers that the subject of the need of systemic effort to control the spread of this dread disease, has come before the medical profession for immediate consideration and action. Viewed from an economic standpoint alone, a great saving would result from a proper system of laws and regulations providing for simple but rigid means of safeguarding the individual, the family, and public against the spread of the disease.

The *status præsens* of medical science with reference to the subject under consideration and the facts presented in the above discussion of the same warrant a few inferences:

1. The prevalence of influenza during the last fifteen years has brought about an increased receptivity for and incidence of the pneumococcus infection.

2. Certain degenerative lesions, especially of the cardiovascular system and the kidneys, have shown an increased incidence during the last two decades; and these are found to be associated or antecedent conditions in the majority of cases of pneumonia, hence are probably potent, predisposing factors.

3. The indoor conditions during the cold season favor multiplication and propagation of the pneumococcus and at the same time tend to diminish resistance to infection by the specific organism.

4. The aged are peculiarly susceptible to pneumococcus infection, hence their bodies should be kept as strong and healthy as possible, especially during the pneumonia season.

5. To overcome the predominating factors in individual predisposition, special attention must be paid to the subject of ventilation, to appropriate clothing, and the avoidance of agencies that cause degeneration of the heart, blood-vessel system, and kidneys, as alcohol, social excesses, an overstrenuous business or professional life, and the like.

6. The sputum is the principal source of infection and should be thoroughly disinfected so soon as it is expectorated, and then destroyed by burning.

7. A large proportion of the general populace harbors the pneumococcus in the nasopharynx, and this is especially true in families and institutions in which cases of pneumonia have occurred, hence thorough cleanliness and systematic disinfection of these chambers should be carried out during the pneumonia season, more particularly in the case of persons more or less exposed to the virus of the disease.

8. Means to prevent dust from accumulating and its daily removal from home and the city streets, are imperatively demanded.

9. Public health authorities should be given full executive power to carry out rules and regulations relative to pneumonia looking to the prevention of its spread, as in the case of other infectious and contagious diseases; they should also carry on a campaign of public education.

10. Measures of prophylaxis must accord with intelligent public opinion before they can be rendered wholly efficient either by municipal or private authority.

CAUSES UNDERLYING PROLONGED LOSS OF FUNCTION IN CERTAIN INJURIES ABOUT THE SHOULDER-JOINT—PROGNOSIS—TREATMENT.

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THERE are many cases of injury about the shoulder-joint followed by prolonged disability.

Of these cases a large proportion give a history of a fall from greater or less elevation upon the shoulder. They sustain neither fracture nor dislocation of any of the bones, but after the ordinary results of contusion have had time to disappear, there persists a definite symptom-complex.

Pain is constant, involves the shoulder region, radiates upward into the neck, and is aggravated by motion, either active or passive. There is also tenderness to pressure in the same regions.

Loss of power varies from moderate paresis to complete paralysis and involves definite muscles. In certain degrees of injury the deltoid, the supra- and infraspinati and teres minor muscles only are involved, with the result that abduction and external rotation are enfeebled or absent. More severe injuries involve, in addition, the biceps-brachialis anticus group and the supinator group of the forearm, with corresponding loss of motion.

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Since this is also true in the cases of obstetrical palsy, it would seem reasonable to assume that the same underlying cause exists in both series.

In obstetrical palsy the paralysis results from overstretching of the nerve roots of the brachial plexus by displacing the head and neck too far laterally from the corresponding shoulder. There result rupture of nerve, traumatic neuritis, and cicatricial contraction around the nerves, hindering or preventing their return to normal function. These lesions occur from above downward in the plexus. The cases in adults under discussion can be entirely explained on the same basis.

In the six or eight cases which presented themselves at clinic, after this explanation had suggested itself, a careful inquiry into the history always elicited the fact that patient had so fallen as to strike on the head and shoulder simultaneously and force them suddenly apart. This is precisely the anatomical attitude which puts the roots of the brachial plexus on the stretch. One case was specially interesting, as it demonstrated the extent of damage possible from this mechanism. A young man of twenty-eight years had fallen from the top of a freight car some few months previously, landing on his head and left shoulder. When he regained consciousness the left upper extremity was totally paralyzed. He entered hospital and operation disclosed complete rupture of the plexus.

This explanation applies not to all injuries about the shoulder, but only to those followed by the symptom-complex previously outlined.

The prognosis given must never be too favorable, especially in patients over forty years of age. Only after the lapse of months, six to eight,

1 Clark, Taylor, Prout. "Brachial Birth Palsy," Neurological Society, April, 1904.

ater a definite prognosis be given. Treatment nat ould be based upon the following principles: s of) Immobilization of the extremity for three y weeks to favor nerve repair, with the minimum shou ount of reaction; (2) counterirritation over e the roots of the brachial plexus; followed by (3) mild massage, electricity, douches, etc., to the paralyzed muscles; and finally, in cases of persistent ir paralysis, (4) exploration of the plexus and excision of damaged tissue followed by nerve sutsible o ure.

There are certain other interesting cases, e in closely allied to those already described, where sr prolonged loss of function follows a fall forexp ward upon the outstretched hand, or upon the nes shoulder so as to push it sharply backward without increasing its distance from the head and sion of ck.

In these cases the spinati usually escape paryysis (*i.e.* suprascapular nerve undamaged), d therefore the lesion could not be due to a retching lesion (inasmuch as that always involves the suprascapular nerve first), but is more likely due to pressure upon the plexus between the clavicle and first rib. In these cases the prognosis is better and the period of recovery shorter.

Summary.—1. The paralyzed muscles are in groups corresponding to the exit of their motor nerve supply in the roots of the brachial plexus, from above downward. Spinati, teres minor, deltoid; biceps, brachialis anticus, supinators; entire musculature of extremity in severest lesions.

2. The lesion is situated in the roots of the brachial plexus, most commonly at the junction of the fifth and sixth cervical roots, but may involve any portion or all of roots from above downward.

3. The lesion is caused by too great diastasis of the head and neck from the shoulder which results in

4. Overstretching (rupture) of the nerves followed by paralysis, traumatic neuritis, and often cicatricial compression of the nerve with permanent impairment of function.

5. Prognosis not very favorable.

6. Treatment.—(*a*) Immobilization of extremity with counterirritation over nerve roots; later (*b*) massage, electricity, etc.; (*c*) finally surgical interference in selected cases.

152 West Fifty-seventh Street.

Endothelial Separation in the Smaller Arteries and Veins.—In microscopic sections of various organs taken post mortem, there is frequently seen a partial separation of the endothelium of the smaller arteries and veins. C. G. Farnum (*Jour. of Exp. Med.*, April 25, 1905) believes that this is not an artefact, but is due to some cause as yet unknown. It is seen in both healthy and diseased conditions. The theory has been advanced that this change is caused by spasmodic contraction of the arteries during the death agony. But the author thinks that, inasmuch as it is found in the small veins, as well as the arteries, this theory is not correct

A PLEA FOR MEDICAL TREATMENT OF THE INFLAMED APPENDIX.

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There is a familiar story of a stableman who wished to give an emetic to a horse and who placed the powder in a tube, intending to blow it into the horse's mouth. An hour or so afterward he was found sitting behind the barn with his head in his hands and looking ghastly pale. His explanation was that the horse blew first. In the discussion of the relative merits of medical and of surgical treatment of inflammatory conditions of the appendix, the surgeons have blown first and they have so ably presented the claims of operative treatment that any one advocating medical treatment is forced to take a defensive position.

The majority of surgeons seem to be extremists in the matter of operating upon the appendix, although there are many prominent surgeons who argue against the demand for universal operation and many others who, at the bedside, often decide in favor of medical treatment, whereas, in their writings they give the impression of a radical view in favor of surgical treatment.

As in almost every other medical question, either extreme is unwise. To argue that the appendix ought always to be removed at the first appearance of inflammatory symptoms, is justinable only on the ground that it is never affected except in a destructive manner. To hold that an inflamed appendix should always be removed is just as unwise as to adopt the same policy for the tonsil, a finger or limb, an eye, or any other organ which can be sacrificed without necessarily fatal result. Some surgeons have gone so far as to claim that the prompt removal of the appendix—that is to say, within twenty-four hours of the first appearance of inflammatory symptoms—is a simple and harmless operation. Granting this claim, for the sake of argument, the patient has been subjected to a distinctly unpleasant, if not absolutely painful ordeal, he has lost from ten days' to several weeks' time, he has been subjected to a very considerable expense, he resumes his occupation in a generally weakened condition and he has a weak spot in his abdominal wall which is liable in about 1½ per cent. of well operated cases (according to Williams, who is an ardent advocate of operation) to yield and result in a hernia which is both unpleasant, and an actual source of danger. As a matter of fact, the risk of hernia is probably considerably more than 1½ per cent., if we deal with general surgical statistics and not merely those of the most accomplished operators. I recall one case, the roommate of a patient with acute inflammation of the appendix, who showed me, as a matter of interest, the scar of an operation for the same trouble. This young man, athletic in his habits, and sub-

ject to repeated physical strain, had nothing between the intestine and the outer world, but a skin-thick covering, for an area at least an inch in diameter. The intestine could be felt moving as plainly as though it were covered only with a handkerchief. Some unusual muscular strain, a fall upon a stick, a pin prick, might easily rupture the abdominal wall and only prompt and skilful operation would then avail against death from septic peritonitis. Any yielding of the scar after operation upon the appendix, should be met by a firm truss or, better yet, by a second operation—involving its own risk—to close the deficiency.

But the operation for an inflamed appendix is not without its own risks. Such an operation, done within a few hours of the advent of symptoms, is practically a vivisection, that is to say, the bacteria which threaten general sepsis are still confined within narrow limits, and the resisting powers of the patient have not been undermined. Theoretically, the surgeons are right in claiming that the operation involves no danger. Practically, however, we must consider the possibility of death due to the anesthetic, to shock, and to accidental infection or complications. The first is small, varying in normal individuals from about 1 in 2,500 for chloroform to about 1 in 25,000 for ether. In persons with weak circulation, degenerated or inflamed kidneys, liver or lungs, the risk is very much greater. The danger from shock is also small. Infection in the course of operation or after the wound is dressed, drowning in one's own vomit and similar accidents ought never to occur, but we are all human and in any large series of cases some will be found in which an error on the part of surgeon, assistant or nurse, will occur. Then, too, there are various complications which may arise for which no one is at all responsible but which are nevertheless fatal. Altogether, the risks of a simple operation, in the most favorable circumstances, are probably not far from one per cent. Statistically speaking, this is a very small mortality. From the standpoint of the patient, it is different. Few of us are anxious to die, and to incur a one per cent. risk of death in a period of a few weeks is a considerable item, amounting to about as much as the total average chance of death for an adult in an entire year, from all kinds of disease and accident.

Considered in the aggregate, the risk of operation upon the appendix is about the same as for any analogous major operation. Thus, the appendix should not be an exception to the general rule, that an organ should not be sacrificed or treated by operation unless its condition is such as to warrant the fear of sepsis or malignancy—not alone in the sense of cancer. It must be admitted, however, that nothing is lost by the sacrifice of the appendix, any more than of the tonsil, and that the scar of operation does not interfere with décolleté costume. Thus, the only considerations to weigh against the indications for operation, are the discomfort, loss of time and money and actual risk of the operation and the subsequent danger of hernia and of intra-abdominal adhesions.

Without attempting to discuss the minute pathological classification of affections of the appendix, they must be divided sharply into two groups, surgical and medical. In the first group, we have all inflammatory cases with formation of pus, except superficial mucopurulent exudate upon the mucous membrane, all gangrenous cases, all cases of cancer, actinomycosis, tuberculosis and other essentially malignant processes, provided they can be diagnosed, and most chronic inflammations in which the appendix is irregularly constricted and dilated, cases which have passed through an acute attack and have become buried in a mass of adhesions which obstruct the movement of the bowel or which are pulled upon during ordinary movements of the bowel or of the body wall, so as to cause pain. Medical cases include acute, or rather subacute attacks of essentially catarrhal nature, purely spasmodic conditions, unless there is so frequent repetition as to lead to the reasonable diagnosis of a foreign body or concrement, and chronic inflammatory conditions without marked deformity of the appendix and which take a favorable course under treatment.

It will be observed that I grant to surgery the majority of conditions but this does not signify the majority of cases. On the contrary, I doubt if one case in ten requires operation and certainly not one in a hundred, if we base the diagnosis—as has seriously been proposed by some extremists—on such slight grounds as a temporary pain and tenderness in the region of the appendix. Some surgeons must have a very distorted view of the clinical features of appendicitis, since they speak as if pus or gangrene was the usual occurrence, as if most cases operated upon were just on the point of rupturing and discharging pus and intestinal contents into the peritoneum, and as if every gripe in the right side of the abdomen were the beginning of an inflammation, necessarily fatal except for the intervention of the knife. A specialist should always be cautious as to generalizing from his own statistics. Imagine, for instance, my claiming that five per cent. of all medical cases are cancer or that diabetes is more common than lumbricoid worms. Specialists naturally see the worst cases and, to obtain a fair perspective, we must view the field from the standpoint of the general practitioner.

Surgeons sometimes claim that it is impossible to discriminate between cases of appendicitis suitable for medical treatment and those for which surgery is the only relief. With due allowance for the fact that diagnosis is not an absolutely infallible art, and that the choice must be made by an expert, it is just as possible to discriminate between medical and surgical cases of appendix inflammation, as between medical and surgical conditions of the tonsil, kidney, eye, pleura or other organs. A considerable minority

of doubtful cases will be encountered which should, for the present, be treated surgically, and rarely a death will occur which, looking backward, we can see might have been avoided by radical treatment. But it is inevitable that we shall encounter in all lines of practice, certain puzzling cases and certain others in which an apparently trivial condition proves to be due to the most serious but peculiarly masked lesions. On the whole, lives will be saved and much unnecessary suffering and expense avoided, by a policy of discrimination, just as, in the long run, it is better that an occasional life should be lost from failure to amputate an injured limb promptly, than to pursue the uniform policy of amputating all limbs which have become inflamed, broken or sprained.

I recall four cases, one of them in the person of an earnest advocate and performer of radical operations, in which patients whose appendix had already been removed, were seized with violent symptoms of appendicitis. I have seen cases in which the apparently inflamed appendix proved to be the gall-bladder and vice versa. The abdomen has been opened and a mass of orange found instead of the inflamed appendix. Two years ago, a young man consulted me on the advice of his family physician, about a chronically inflamed appendix. It was so irregular in contour that I thought medical treatment would be useless, but it was undertaken merely to keep him in comparative safety until operation could conveniently be performed, there being urgent family reasons for delaying the operation, the anxiety about which would have imperiled a near relative. The treatment succeeded so well that an operation proved unnecessary and the patient has been entirely well for over two years. In two or three cases, patients who have done well under medical treatment have subsequently been operated on and a normal appendix has been found, or rather one that was histologically abnormal, but which had become atrophied to safe proportions and occluded so that further danger of inflammatory reaction from intestinal contents did not exist. Such appendices are the normal desideratum of the practical physician but, of course, are not normal from the standpoint of the anatomist. The finding of similar atrophic appendices at autopsy or upon operations for other conditions is comparatively common, but I allude only to cases under personal observation.

The possibility of recovery, with atrophic appendix, is abundantly established. Is it a possibility of sufficient regularity to be depended upon to the exclusion of surgical intervention? If we are to lump all cases of appendicitis together, it is probable that the routine operative treatment would save more lives than the routine medical treatment, in spite of the direct and indirect operative mortality and not regarding the inconvenience and expense of unnecessary operations. My own experience is that the best and safest plan is to discriminate between surgical and medical treatment—this experience being a direct personal one with about 100 cases. By this system of discrimination, I have encountered two or three cases in which patients for whom surgical intervention was strongly advised, recovered without operation, and a few in which the early promise of medical treatment was not fulfilled and in whose cases subsequent operation was necessary. In no instance was the delay injurious. Of course, I do not now refer to cases seen in consultation too late, but only to those seen early enough for a fair examination and when the delay was on my own responsibility. In reviewing the entire list, I recall only one in which it seems possible that life could have been saved by a different course of treatment. The case was a rare one, simulating gall-bladder obstruction. Indeed, there was a spastic jaundice and the appendix lay deeply behind the cecum so that it could not be felt. Even so, the diagnosis was made sufficiently early but I yielded to the advice of a surgeon who counseled further delay of operation and septicemia ensued. This surgeon very generously assumed the blame, but as I told him, it was my business not only to call surgical council, but to say when the operation should be performed. In justice to both of us, it should be said that this death occurred eight years ago, when there was good authority for delaying operation for several days, if it could not be performed in the first thirty-six to forty-eight hours, and this was impossible, as the consent of the family could not be secured.

Surgeons commonly assert that it is impossible to predict the outcome of a case of appendicitis. This is true in the sense that no one can be infallible. It is also true in the sense that only exceptionally would a medical diagnostician base his entire direction of a case upon an early, single examination. Without arrogance, it may also be said that it is true for a surgeon whose skill is developed along entirely different lines. The surgeon is primarily an operator, a hand-worker, to translate literally the word *cheirurgeon* from which our modern term *surgeon* has been corrupted. It is with no disrespect that we say that the surgeon cannot reasonably be expected to possess the requisite diagnostic and prognostic skill for discriminating between the different classes of appendicitis. But for him to deny the possibility of such skill on the part of internists who have spent years on diagnostic problems is as unreasonable as if we should gauge the possibilities of surgery by the operative technic of a man who had restricted his attention to medical practice.

It would require too much space to enter into the minutiæ of differential diagnosis between surgical and medical cases. The principal methods of diagnosis are the microscopical examination of the blood which shows an excess of white cells, especially of the polymorphic variety, if there is sepsis; the pulse; the temperature; the determining or appendicular swelling and reflex muscular contraction to guard the inflamed organ; the symptoms of the patient; and, very important, the

general mutual consistence or inconsistence of the symptoms and signs. It is not safe to base the diagnosis and treatment on any one of these methods, nor to omit any.

Treatment is a very important matter and the surgical assertion that cases subjected to medical treatment usually relapse, is largely based on the results of cases that are not really treated at all but that recover under the use of anodynes.

Probably 99 per cent. of fatal cases of appendix inflammation are due to sepsis within the bowel and, in probably 90 per cent. the chief bacteria concerned are the ordinary colon bacilli and other regular inhabitants of the bowel whose virulence has been increased by constipation and opportunity for growth.

The medical treatment of the acute, or rather the subacute, case should be based on this conception of the nature of the diseased process. In a few instances this conception will prove incorrect, as for example, when there is an acute tuberculous process, a localized pneumococcic infection, or actinomycotic or other specific involvement. But, in the vast majority of instances, the danger of pus or of gangrene is due to the increased virulence of the bacterial flora of the bowel, usually the colon bacillus par excellence. Gangrene may be due to a primary embolism or thrombosis of the vessels, or to an extrinsic strangulation, and perforation may be due, not directly to the burrowing of pus or the destruction of tissue by necrosis, itself dependent on an intense inflammatory reaction, but to the penetration of a foreign body. But a perforation not essentially due to a septic inflammation or a gangrene not essentially due to the same, will not usually present the clinical picure of appendicitis.

A great deal has been written about the use of opium as a splint to an inflamed bowel and about the danger of peristalsis as disseminating septic material and preventing the formation of protective adhesions. Hence, the use of cathartic treatment has been strongly condemned, and the use of sedatives has been urgently advised, morphine being the favorite.

Personally, I hold strongly to the belief in free catharsis and, if indicated, bowel and stomach washes. If a patient is in some out of the way place where operation is out of the question, it is wise to relieve this suffering, splint the bowel with adhesions formed under the assistance of morphine and trust that there will be no perforation or migration of bacteria to the peritoneal surface. Many such cases recovered, with more or less trouble from perityphlitis abscesses or a mass of adhesions crippling the future movements of the bowel, in the old days in which inflammation of the appendix was not known except as a necroetic process or in the form of its terminal septic peritonitis. Many such cases recover today but, personally, I would prefer, even in camp or on shipboard, an operation under morphine narcosis, with such apparatus as a carefully boiled pen-knife, linen thread, domestic needles and clean rags, and done by an unpractised operator, like myself.

But such a choice rarely presents itself in a civilized community. In the ordinary case, I believe that there is no indication for splinting the bowel. In the first place, such splinting is unreliable; perhaps the omentum will travel down to where it is needed and perhaps adhesions will form so as to prevent rupture into the peritoneum and perhaps they will not. In the second place, the splint, if formed, remains to hamper the movements of the bowel for a long time, if not permanently. In the third place, the fracture of the bowel for which a splint is desired by some authorities, is not a simple but a compound fracture—compound in the sense of being septic from the germs of the intestine which are more numerous and more virulent than those of the skin and of the air to which a fracture of bone is subject, and compound in the sense that there is danger of breaking through into the peritoneum. If the fracture of the bowel is not compound in these figurative ways, there is no need for the figurative splint. It should be thoroughly understood that morphine is a dangerous drug in a triple way: First, by disguising symptoms that point toward the need of a prompt operation; secondly, by uncertainly acting toward the formation of a splint of adhesions that is an uncertain reliance and ultimately undesirable, even if it has fulfilled its primary indication; thirdly, by retaining bacteria in the bowel and their toxins in the system.

Granted that the case is mild, the prime indication is to keep it so by getting rid of the contents of the bowel, and I know of no better means to accomplish this than calomel in divided doses, followed by a Seidlitz powder. Saline or boric acid injections may be used if there seems to be lodgment in the large intestine, low down. But there seems to be some danger of increasing the trouble by enemata. The patient should fast and drink plenty of water for two or three days. Credé ointment or pipe-clay and glycerin poultices may be applied over the lower abdomen. They do no harm and I believe are really adjuvants. Hot poultices and ice bags seem to me inadvisable. Pain due to spasm, internal irritation and apprehension can usually be relieved by atrophine, cannabis indica, etc. If severe enough to require morphine, which rarely occurs in my experience, it is severe enough to suggest the need of operation.

Chronic inflammation of the appendix is really a part of a general typhlitis or even colitis. Medical treatment must be continued for several months and consists in appropriate diet: the use of an internal ointment of bismuth, etc., in purpetrol, salol, salacetol, menthol, etc., and external applications according to indications. Only the general principles of treatment can be alluded to here.

It will be noted that the most enthusiastic surgeon cannot contend more earnestly for operation in septic and gangrenous cases than I do. My

plea is simply for proper discrimination and rational treatment, not neglect under morphine, in cases in which operation is unnecessary.

LATE RESULTS OF SURGICAL TREATMENT IN GASTRIC ULCER.—PRELIMINARY REPORT.

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Of the 146 cases of operation for lesions of the stomach that I can report, we know the end results in 134, or 91 per cent. As a large majority of the operations have been done within the last two years by Dr. Bottomley and myself at our clinic at the Carney Hospital, the use of the term "end result" is naturally a restricted one. We cannot yet give a definite reply to the query as to the frequency of the relapse of ulcer at a period remote from the time of operation. That must be left for surgeons of larger experience. From the reports of other clinics and from an inherent feeling that has grown while noting the progress of our earlier successes, we believe that the risk of a relapse is small. Be that as it may, the question of immediate and total relief from distress, vomiting, bleeding and other untoward symptoms is important enough to merit consideration. So far as our results go in this respect I will give a brief report alluding to a few interesting problems only. At some later day a more critical analysis will be made, but this will necessitate a long and tedious paper. All of our 146 operated cases are included in this preliminary report. About fifty suffered from cancer, the remainder from benign lesions. The general profession is practically agreed as to the treatment of cancer of the stomach, but I cannot forego the temptation to emphasize a few considerations that have been forced upon us by our experience, and therefore I will take up this class first.

In 14 cases of cancer and sarcoma we were limited to exploration, the disease having so far advanced that either a gastro-enterostomy was not advisable, or else it could not be performed if indicated. Many of these patients had been under medical treatment for weeks or months. Some were of the fulminating type and hopeless from the start. I think it is fair to say that the interference made practically no difference in the progress of the disease in the majority of the patients. The diagnosis, except in one case of sarcoma, was practically settled before the abdomen was opened. Information as to the possibility of prolonging life or of alleviating distress was the main object. It can be definitely affirmed, in the light of our experience with other malignant cases that this method of inquiry is just and humane. No one can ever tell the condition of the viscera without opening the abdomen, and one not infrequently may be greatly astounded at the operative revelations. In three desperate cases a jejunostomy was done to avert death from starvation. In two of these it was too late even for temporary relief. The third patient, however, obtained comfort enough t justify the undertaking.

As to the moral effect from an operation tha gives no mechanical benefit this is hardly th place to argue. A few were distinctly relieved o their depression, while their morale underwen the extraordinary change that we occasionally se following operations that accomplish nothing This, nevertheless, should not be used as an argu ment in dealing with disease of this gravity.

Anastomosis in Cancer.—This has been done i 25 cases, usually with the Murphy button. In fiv the operation probably hastened death by a fe days. I doubt if it made a greater difference These few people had come to us usually from distance, nearly dead from starvation, pain an vomiting. Operation was done with the clea understanding on the part of the patient as well a ourselves that the outlook was desperate.

When we come to the less hopeless class, wher the disease spreads more slowly and yet wher it has progressed too far for radical excision, w have obtained such satisfactory results, rela tively speaking, of course, that we feel more an more encouraged in our efforts to mitigate th inevitable distress.

Of the 20 cases remaining, we know the end re sult in 19. Two lived for over a year; nine live from a month to a year, and the remainder die within a month of the operation, but not becaus of operation, so far as we can honestly estimat The length of life is not the only criterion b which we should estimate the value of this opera tion. All these patients are going to die, and the are going to die within a few months or week unrelieved by any known medical treatment. A a matter of fact, most of our cases had bee through faithful and varied forms of medica treatment. We have failed to see a single ind vidual that has thus derived a fraction of th benefit that we have given to a majority of ou cases. This benefit comes almost at once afte the operation, which is practically painless, an confines them to bed for only a few days. Witl in the week I have received notice of the death o one of our patients, sixteen months after gastro enterostomy, at which time we found an inopera ble growth with metastases. Following th operation he was able to eat three meals a da and worked up to within five weeks of his deatl which came from a general malignant infectio

Another patient was doing heavy work in furniture van a year after operation. Still an other, who had been refused operation elsewher because of a diagnosis of malignancy, and wh was practically bedridden, I occasionally see now nine months after gastro-enterostomy, doing ligl work and eating any reasonable food in place o the milk diet on which he had lived for month and which he regularly vomited after it had be come so foul that it could not be retained on h stomach.

Gastrectomies.—We have ten pylorectomies o partial gastrectomies. When the operation ha

been done for cancer we have felt reasonably convinced that all of the growth could be removed. A wider experience probably will encourage us to undertake operation in cases that look less encouraging because the experience of the Mayos and Mikulicz, as well as our own limited observations teach us that the risk to life is much smaller than would seem probable. Two of our earliest cases died as a result of poor technic. Of late, by adopting the operation as perfected by the Mayos, the patient suffers practically no shock. In several cases the complete operation has been done because at the time it was impossible to determine whether the tumors were malignant or not, and excision seemed the conservative undertaking. We have followed all of our cases and they are all satisfactory, especially when compared with their previous condition. They have to learn to forego large meals, a seemingly difficult task because the pleasure of eating the ordinary foods, so long denied to them, runs away with their discretion.

In four cases of cancer, three of them being done eight, six and four months ago, the results are good so far. The fourth case is still in the hospital. The patient on whom we operated eight months ago recently returned for closure of the ventral hernia following infection of the parieties at the time of operation. He has proved interesting in several ways. The anastomosis, made with a Murphy button, had contracted to about the diameter of a pencil, while the button itself was in the stomach. After its removal the anastomosis was enlarged to a satisfactory size. Most careful search failed to show any possible trace of malignant growth in any part of the abdomen. The significant lesson that we may learn from our limited experience is the fact that of fifty cases of malignant disease of the stomach, not including a number of patients upon whom we have refused exploration, only four have come to us in time for radical excision. Allowing for timidity on our part in choosing a palliative operation, where perhaps excision would have been justified, it is still a most lamentable fact that somehow or other these patients do not seek surgical aid early enough to benefit from the only known therapy that can give them a chance of permanent relief.

Ulcers.—For benign lesions we have done 90 operations, not including the excisions. Of these we know the end results in 79, having examined most of the patients personally within a few weeks. They have been followed closely for the purpose of getting at the facts, and to aid us in adopting one or another of the various methods of technic. We do not feel that the ideal method for the routine case is attained, but the results are sufficiently encouraging to stimulate us to carry on the operative treatment of benign lesions of the stomach that fail to yield satisfactorily to medical treatment.

Most of our ulcer cases have been partially relieved by medical treatment for periods extending over months or years, or else they have been cured one or more times at various intervals by the same means. Rarely upon opening the abdomen do we, or the medical expert who has studied the case most conscientiously for many months, find what we expected. There are a few typical cases that come up to our anticipations, but we have grown so accustomed to startling revelations that we begin operation ready for any possible combination of circumstances. It is true our methods of diagnosis are crude. We have derived very little help from chemical and bacteriological examination. Palpation, forced distention, etc., are of help to a certain extent. The various finely proportioned test meals we have abandoned, preferring for practical purposes to give our patient a good square meal, such as should be enjoyed with a healthy stomach, and note the result at the end of a few hours.

The general history and condition of the individual, plus the various evidences of bleeding, stasis, fermentation, distress, etc., make up the sum total as to whether the case is surgical or not. At present I can recall only one patient in whom we have found nothing to warrant more than exploration. In some we find gall-stones or adhesions or growths in the neighboring organs where the symptoms indicated gastric disease. Such cases are legitimately surgical and in none of them could definite knowledge be obtained without operation. Considering the fact that some researches that are being carried on on the mucous membrane from the stomachs of our patients, show that we have still much to learn of the normal histology of the stomach wall, it is not unreasonable to be skeptical of the clinical methods of elucidating the conditions in pathological stomachs. Some day an exact diagnosis may be made by the internist, but to one who has seen a few score of stomachs at operation there is need of a large amount of credulity to believe that even an approximate diagnosis can be made without visual and tactile examination. Even with certain growths under our eyes and fingers, it is as impossible to distinguish a benign from a malignant tumor as it is in certain tumors of the breast.

To consider first some of the minor procedures which we have used. In three cases we shortened the gastrohepatic ligament for ptosis. One patient, as might be anticipated, has not been relieved. The two not heard from are probably in the same condition. In two patients with perigastric or periduodenal adhesions, the freeing of these bands resulted in cure. One pyloroplasty for probably syphilitic stenosis was well long after the operation. Of six perforations, three recovered. Here operation is so clearly indicated that it need not be discussed.

Of Finney's operation of gastroduodenostomy we had great hopes, but we have been forced most reluctantly to give it up because we could not obtain as satisfactory results as we had expected, and because it is limited in its scope.

We have followed ten of the twelve patients, and of these only five can be pronounced well. One case died of inhalation pneumonia, and one case, in which we used Kocher's method, died of hemorrhage. Both of these deaths should not be placed against the method but against the operator. Of the various methods of anastomosis, whether by button or by suture, the mortality can be placed so low that the danger is far less than the danger of allowing many acute or chronic ulcers to persist without interference.

In our early experience, when we used the button for anterior anastomosis, our results were bad, but mainly because of the type of case furnished. One acute hemorrhage continued to bleed and died in three days. Two patients died of tuberculosis later. In none of these could the method necessarily be condemned. We then tried the posterior anastomosis by various methods, using preferably that described as Moynihan's, with the long loop. The results were better, but not perfect. Of 27 done by this method we have results in 25. Twelve are well. One died of rupture of an aortic aneurism; one, a congenital stenosis at the eighth week, died as a result of prolonged starvation, and a third died at the end of two weeks, from vicious circle. This leaves ten in whom the benefit was not as satisfactory as desired because of more or less regurgitation of bile. In four of these we have done a second operation, by which the entrance of bile into the stomach has been shut off with marked improvement.

Moynihan has recently advocated the short loop. We tried this about ten months ago in six cases. One case we have lost trace of. Four are now cured, one of them being a congenital stenosis. But one patient has had as troublesome regurgitation as any of our cases, hence we have[1] hesitated to adopt the short loop as a routine. In eleven patients where we have used the long loop together with an entero-anastomosis and obliteration of the ascending limb, we have had seven complete cures (one being preceded by a temporary dysentery), and one death, the cause not being determined at autopsy. Three patients have been lost sight of. This operation is mechanically satisfactory, but it is complicated and long, so that recently we have used the method of Roux, or a modification, in all our cases. The immediate results are all that could be desired. We have seen no regurgitation of bile, the shock is no greater than with the Moynihan operation, but it is more difficult, and there is a little more chance for operative infection. We have made an anastomosis in a few cases of profound anemia due to acute or prolonged hemorrhage. The results have been better in the acute cases. In the latter class I include only those patients that are presumably bleeding to death at the time of operation. We have operated, as well, on a number during a period of active hemorrhage, but in these the operation has not been done primarily for hemorrhage. In one case of acute hemorrhage with recovery, the hemoglobin was estimated by Tallqvist's method as low as 15 per cent. In two cases of profound chronic anemia an ulcer was found in one, the patient dying a month later of pernicious anemia. Characteristic blood changes were found only a short time before death. In the second case a pernicious anemia could not be determined, but an hour-glass stomach was found. The operation made no apparent difference in the progress of the disease, as he died of anemia about a week later. He had been steadily losing ground under medical treatment for twelve years, and two years before we saw him he had been refused operation elsewhere on the basis of the chemical findings. His hemoglobin was estimated as low as 15 per cent. also.

In all of our anastomoses we have learned by experience that caution in diet must be exercised for some months after operation. Within a week patients, as a rule, are on a general diet, a diet that has often been denied them for months or years. The temptation, as soon as they are released from supervision, is to overeat and to indulge in foods that would tax a gourmand. They then have a return of distress and perhaps vomiting, and are alarmed and disappointed. By regulating their ways and times of eating, however, they rapidly return to normal, and this condition once established, we have had none in whom there seems to be any inclination to relapse of the ulcer or its symptoms. Moreover, in the cases on whom we have operated a second time we have found no evidence of relapse of the ulcer. To be sure we cannot point to immunity for longer than two and a half years, but the contrast in the patient's condition for this brief period with that which previously obtained under medical care is most encouraging. Even in the cases partially relieved the condition for the most part is far preferable to that which existed before operation. These patients complain perhaps of occasional bilious regurgitation, or of left-sided pain, the cause of which we can only conjecture, or of distress after some particular kind of food. One patient, for instance, can eat anything with impunity except fish; to another some particular kind of fruit or meat may be debarred, but on the whole they are not more peculiar in this respect than many normal individuals.

As intimated at the beginning, this is only an imperfect review of our cases. Many most interesting questions have not been alluded to, but I think that in conclusion I can state conservatively that the surgical results in both malignant and benign cases are steadily improving and correspondingly encouraging; that in malignant or chronic benign ulcers and its sequelæ medical treatment must yield to surgery; that this is true of some forms of acute ulcers; that although the technic has improved to such an extent that the results are better than under medical treatment.

[1] Since reading this paper we have returned to the short or "Y" loop" method.

nevertheless, the ideal method has not been definitely established. This is the next important problem for surgery to solve. Furthermore, only an approximate diagnosis in surgical cases can be made by medical tests, and until such tests have been proven infallible, it is the duty of the physician to seek surgical advice in every case in which there is a possibility of benefit to be derived from mechanical means.

THE LARYNGEAL COMPLICATIONS OF TYPHOID FEVER.

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A careful search of the literature shows the records of comparatively few cases of larynx complications in typhoid fever. This scarcity is probably due to the fact that few cases of the disease are examined with the laryngoscope. The attention of the physician is directed to other organs more directly involved in the diseased process and the sensorium of the patient is so benumbed that he seldom complains of throat lesions. Another reason for the scarcity of literature on the subject is the fact that few text-books on medicine lay any stress on these rather obscure complications. Osler, in his excellent work, describes briefly the different lesions that may be found in the larynx, but most of the other books barely refer to them. That these complications deserve more than a passing notice, is evidenced by the fact that occasionally they have serious consequences and the most heroic treatment has to be resorted to in order to save the life of the patient. In looking through the literature one finds cases of ulceration, infiltration and perichondritis reported where tracheotomy had to be performed to relieve the symptoms of stenosis of the larynx. In such cases only the promptest treatment can save life. When it is realized that such complications are most liable to occur when the patient is delirious and can give us no assistance in the diagnosis, the importance of a careful examination in all cases presenting laryngeal symptoms is obvious. Fortunately for both patient and physician, the larger number of such complications tend toward recovery. Even when pronounced symptoms, as hoarseness, etc., supervene, the patients usually recover without treatment.

Lüning names Boyle as the first author who wrote about disease of the larynx in typhoid fever (1808). He reported two cases which in the convalescence from a "severe putrid fever" were attacked with stenosis of the larynx. Both patients died, one shortly after tracheotomy. At the autopsy it was found that one patient had a perichondritis, the other a submucous laryngitis without involvement of the cartilage. In 1823 Joseph Frank cited from Pommer and Horn the occurrence of inflammations in the larynx and trachea in typhoid fever. Bouillands (1825) related cases of larynx complications. In 1829 Louis published clinical manifestations which he had observed in the larynx and in the same year Elster recorded a case of perichondritis. From this time on a number of writers —Chomel, Hasse, Rokitansky, Momeret, Fleury, Jansen, Dittrich, Rheiner, Kern and Strohmeyer —described cases of larynx complications. In 1876 Keen collected from the literature 169 cases of laryngeal complications in typhoid fever. Eight years later Lüning was able to find 213 reported cases, 14 of which were personal ones. In 1898 Keen published his classical monograph, "The Surgical Complications and Sequels of Typhoid Fever." This monograph is probably the best exposition of the subject under discussion in the English language and is not surpassed by the writings in foreign tongues. He tabulated in this work 221 cases of laryngeal complications which had been reported up to the year 1896. It will be noticed that only eight cases were reported between the years 1884 and 1896. The scarcity of cases during this period was probably due to the improved methods of treatment instituted in typhoid fever. From 1896 to May, 1903, Dupuy found 34 additional cases which, with one observed by himself, brings the grand total for not quite one hundred years to 256 cases. If now we review the records of autopsies in typhoid fever, the figures, to say the least, are surprising. Zülzer found that 20 per cent. of all patients dying of typhoid fever have ulcers in the larynx. Heinze, in 113 autopsies found 13 ulcers in the larynx (11.5 per cent.). In 1032 sections in which the complication was known, diphtheritis was present in one per cent., ulceration without cartilage disease in 5.4 per cent, perichondritis in 5.9 per cent. The greater the mortality in an epidemic, the more frequent are the complications.

Etiology.—The opinions of various observers are greatly at variance as regards the cause of the complications. As far back as 1842 Rokitansky considered the involvement of the larynx "as a true metastasis of the poison." In 1894 Shulz claimed to have demonstrated both in sections and in cultures from the swollen lymphoid nodules the typhoid bacillus. His results have been confirmed by Cornil, Ranvier and W. Williams. Such observers as Lucatello and Klebs are of the opinion that the larynx affections are true typhoid lesions identical with those of Peyer's patches. These lesions are held by some to be so characteristic that in doubtful fever cases the diagnosis may be made with a high degree of certainty from the appearance of the ulcers. Bayer diagnosed typhoid fever from the appearance of certain ulcers on the faucial pillars. Gerhardt's case of "laryngotyphoid" showed at the onset typical typhoid ulceration in the larynx, the other symptoms of the disease appearing in regular order. Watson Williams reported a case in which "enteric fever com-

menced with the laryngeal affection," the larynx being the seat of typical typhoid lesions. The typhoid bacillus was found in cultures taken from ulcers on the arytenoid cartilages. The autopsy confirmed the diagnosis. In some cases the specific bacillus cannot be demonstrated—in such cases the various pyogenic organisms are found in abundance. In the early part of the last century the different complications were believed to be due to secondary diphtheritic infection. Murray and Robertson have each reported fatal cases of Ludwig's angina occurring in the third week of typhoid fever. Robertson's case was due to a pure streptococcic infection. Some observers claim that dorsal decubitus is responsible for the formation of the various laryngeal lesions. Thus Rühle calls the ulcers decubital ulcers. He assumes that they are formed by a pulling or squeezing action, particularly on those surfaces which rub together, as the vocal processes, the edge of the epiglottis, etc. The epithelial covering is rubbed off and the gateway opened for the entrance of pyogenic organisms. Virchow believed there was a mucous membrane necrosis as in diphtheria. Schrötter and Landgraf agree with him. Fraenkel doubts the etiological importance of the typhoid bacillus in the formation of ulcers; he believes they are caused solely by staphylococci. Eppinger claims that the affected areas behave like Peyer's patches—there is first infiltration followed by necrosis; then the ulcer forms in which the cocci find a resting place.

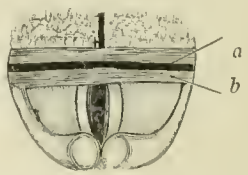
The forms of the laryngeal complications of typhoid fever are catarrh, erosions, infiltrations, ulcerations, diphtheritis, perichondritis and paralyses. The catarrh localizes itself in certain parts of the larynx: the inner surface of the arytenoid cartilages, the adjoining parts of the vocal cords and the epiglottis. The process may lead to desquamation of the epithelium, erosions or ecchymoses. Subjective symptoms may or may not be present—there may be a feeling of dryness or tickling in the throat; sometimes there is hoarseness, sometimes aphonia. Cough is slight or entirely absent.

Erosions, according to Eppinger, occur particularly along the lateral borders of the epiglottis. At the bottom of the erosion can be seen the exposed edge of the cartilage. He explains their formation by an edematous swelling which causes a bursting of the epithelium.

The infiltrations occur as circumscribed and diffuse. The circumscribed forms are seen at the base of the epiglottis, on the ventricular bands, the inner surface of the arytenoids and the anterior commissure. They present nodular swellings of soft consistence and homogeneous appearance and consist of masses of cells similar to lymph cells with one, two or three nuclei. The fresh nodules correspond exactly to the swelling of the follicles in the small intestine. The diffuse forms appear on the mucous membrane of the laryngeal surface of the epiglottis, the inner surface of the arytenoids or on the ventricular bands as soft, succulent, whitish swellings. They are easily differentiated from the healthy membrane. Histologically they are like the nodular forms and Eppinger thinks they are simply diffuse, nodular forms. In these lesions the lymph follicles and the tissue between are infiltrated. Both forms of infiltration can give rise to ulceration. Ulcerations are formed by the breaking down of the infiltrations. They have a tendency to spread in all directions, particularly as regards depth, in which case they expose the cartilage. The following case, which was seen by the writer, is a good example of infiltration and ulceration occurring in typhoid fever.

Case.—W. F. H., white, twenty-four years old, entered the University Hospital September 8, 1904, with a well-marked case of typhoid fever. On the twelfth day of his illness, he suddenly became hoarse and gradually grew worse until he was unable to speak above a whisper. One week later, at the request of Dr. Gichner, who had charge of the patient, I made an examination of the throat and larynx. At this time the patient's mental condition was fairly good, so that he was able to answer questions. There was some irritation in the throat but no pain. A slight cough was present. The examination had to be made with the patient in the prone position and in a large ward where is was impossible to exclude daylight. The pharynx was slightly congested. The epiglottis was very much swollen posteriorly on both surfaces; the swelling had the appearance of a typical tuberculous infiltration with the exception that it was perhaps somewhat darker in color. In the center of this swelling, along the edge of the epiglottis, the mucous membrane had disappeared and the cartilage was clearly visible as a white rim. The infiltration of the part had broken down and had formed a linear ulcer along the entire posterior edge of the epiglottis. The anterior part of the organ, where it was attached to the base of the tongue, was normal in appearance (Fig. 1). The arytenoid cartilages were slightly swollen. The vocal cords were red and thickened; on phonation they approximated before and behind, leaving in the middle area a decided space which accounted for the the loss of voice (Fig. 1). There was also a decided relaxation and flabbiness of the cords. The patient was advised not to use his voice, and an oily spray containing camphor and

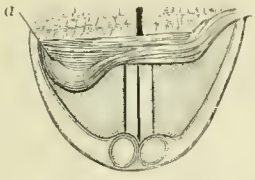
Fig. 1.



a, Linear ulcer. *b*, Swelling of Epiglottis.

menthol was used in the larynx. The throat was examined every other day to watch the progress of the complication and to prevent, if possible, any more serious trouble that might arise. At no time were there symptoms of stenosis. The aphonia persisted for eighteen days when the voice began gradually to clear up. The paralysis of the internus completely disappeared and about the first of December the patient was delighted to find that he could once more talk with a perfectly normal voice. The condition of the epiglottis had not pursued such a favorable course. The ulceration was slow in healing and the infiltration was present some time after convalescence had been established. At the last examination the epiglottis was still somewhat swollen; on the right posterior edge there was quite a prominent swelling while on the left the tissue appeared as if bitten off. The base of the ulcer had healed and its position was indicated by a narrow furrow (Fig. 2). The diagnosis of the conditon was infiltration and ulceration of the epiglottis, followed by perichondritis, which had resulted in a destruction of the left lateral cartilage, and paralysis of the thyro-arytenoideus muscles. No cultures were taken from the ulcer and it is not known whether

Fig. 2.



a. Swelling of Epiglottis.

the typhoid bacillus was present or not. Fortunately for the patient the perichondritis was limited to the epiglottis. Had the process attacked the larynx proper, it is highly probable that the result would have been disastrous. As is usual in such cases, the patient did not complain of pain. A similar condition in tuberculosis would have required the use of cocaine to relieve the sufferings of the patient. On account of the rarity of the complication the case is interesting.

Diphtheritis in typhoid fever is probably not true diphtheria. It produces only slight symptoms and is usually recognized accidentally as white patches in different parts of the larynx. Eppinger, who has studied the condition carefully, claims that these patches are not exudative, but necrotic, epithelial masses with heaps of micrococci between. The cocci penetrate the tissues, cause necrosis, and in this way form "septic ulcers" which differ from the true infiltration ulcers in that they are slightly undermined, soft and surrounded by healthy mucous membrane. Septic ulcers can extend to the cartilage, which may become carious. They can occur with the typhoid ulcers and cause great deformity—the epiglottis can be entirely destroyed. Ulcerations of the larynx heal with or without deformity. In the latter case cicatricial bands may form between different parts of the organ as the vocal cords or a vocal cord with a ventricular band, etc.

Perichondritis with necrosis can affect any or all cartilages. In 59 cases Eppinger found the thyroid cartilage diseased twice, the thyroid and cricoid five times, the thyroid, cricoid and arytenoids three times, the cricoid 22 times, the cricoid and arytenoids 14 times, the arytenoids nine times. The cricoid was sometimes entirely absent.

Edema of the larynx occurs with the ulcerations and perichondritis.

It is accompanied by excessive submucous swelling, which can be so acute as to cause death before the arrival of medical assistance. Dupuy's case was typical of this condition. The patient, twenty years old, had a severe attack of typhoid fever. One month from the beginning of the attack, hoarseness and labored breathing suddenly appeared. The symptoms gradually grew worse until there was a marked stenosis. The mirror showed diffuse and symmetrical tumefaction over the entire surface of the larynx. The vocal cords were fixed in the middle line and, during inspiration, separated only near the posterior part. The glottis was reduced to a mere slit. The epiglottis was normal. A spray of adrenalin, 1 to 1,000 into the larynx, made the breathing more comfortable for twelve hours. The stenosis again became marked and the vocal cords were now seen to be firmly fixed in the middle line from an evident anchylosis of the crico-arytenoid articulations. Tracheotomy had to be performed to save life.

Paralyses of the muscles are comparatively rare. One muscle or all may be affected.

The most dangerous complication is stenosis, which may be caused by edema in acute disease or after recovery through thickened tissue and deformities. The subjective symptoms of laryngeal complications are slight. Sometimes the patient complains of dryness or soreness of the throat, referred to the larynx, and the voice is rough and hoarse, or even aphonic. The diagnosis of the kind of complication without a laryngoscopic examination is practically impossible.

The prognosis of the different affections has been sufficiently emphasized in the descriptions of the various complications.

Treatment.—Most of the conditions tend to recovery. Expectant treatment is all that is necessary in the majority of cases. The treatment of the fever is of first importance. The examination of the larynx should be resorted to from time to time where any trouble is suspected. A mild spray of an oily solution of camphor and menthol and the non-use of the voice are all the requirements in most cases. Where ulceration or perichondritis is present, submucous laryngitis must be watched for, and should it arise, energetic treatment instituted at once. Sprays of adrenalin, the swallowing of small pieces of ice and perfect quiet may tide the patient over. If marked symptoms of stenosis make their appearance, tracheotomy promptly performed is undoubtedly

the best means of saving life. Where permanent adhesions have formed as the result of the inflammatory process, the tracheotomy tube may have to be worn indefinitely. From what has been said above, the importance of a careful laryngoscopic examination in all cases of typhoid fever showing laryngeal complications does not need to be emphasized. Prompt diagnosis and treatment of the milder complications may prevent the disastrous results arising from the more serious affections of the larynx. It is no doubt true that if more attention were paid to the examination of the throat, the number of the laryngeal complications in this tedious disease would be materialy increased in the literature. We cannot form a true estimate of the bearing of these complications on the prognosis until more complete statistics are obtainable.

REMARKS ON ROTARY LATERAL CURVATURE OF THE SPINE.

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This common deformity is the cause of considerable confusion, especially as regards its treatment. A few practical conclusions based on a rather extended experience may be of interest.

Occurrence.—It is usually supposed to be much more frequent in females. This is doubtful, but for cosmetic reasons the vast majority of patients presenting themselves for treatment is of the female sex. The deformity is generally discovered about the time of puberty, often by the dressmaker, who finds some asymmetry in the hips or shoulders.

Cause.—As to this we are usually in the dark. It is not caused by a short leg or by adenoid growths. Sometimes it follows an empyema, a wry neck, or an anterior poliomyelitis of the trunk muscles. Rarely it is seen with rickets. Usually no cause can be found. When I had the class at the Vanderbilt Clinic I followed up all sorts of clues, had eyes corrected, drilled out noses, and at last made up my mind that for the present we must put the deformity in the category with varicose veins, hernia and flatfoot, caused by the habit of the human animal of standing on its hind legs.

Prognosis.—Bad, as regards the prospect of ever having a straight spine. When once a rotation has taken place, we cannot remove it by any system. We can say that, with proper treatment the deformity will probably grow no worse, and that it may be somewhat improved, but that is all. Systems that promise more are mostly fakes, some with a basis of common sense, some without.

Treatment.—The man who makes his patients stand and walk correctly, persevere, and infuse enthusiasm into their work, will get better results than he who, neglecting these, puts his trust in the most elaborate exercises.

Two general methods of treatment may be chosen—apparatus and exercises. A very young patient may be put up in snug plaster-of-Paris jackets during the period of growth, that is, for six or eight years, and be made much straighter. In the severer cases, in older children, a brace or a plaster corset may be of some service, perhaps in conjunction with exercises. I prefer the plaster corset, applied when the patient is suspended, with her trunk pushed into the best possible position. It is then slit up the front, trimmed and furnished with lacings. It should be worn during the periods of inaction, especially during school hours.

For the mild cases and for those of moderate severity, our main reliance is on exercises, frequent and long continued. About these there is nothing mysterious, nothing peculiar, abstruse or complicated. No one possesses anything exclusive. This fact should be held firmly. The main objects are to make the spine flexible, to strengthen the back muscles, and to teach the patient control over them. This last is, strange to say, often difficult. Following is my general routine, varied somewhat to suit special cases:

1. *Standing.*—The proper position is with head up, chin down, shoulders back, chest out, abdomen in, buttocks in, weight borne on the balls of the feet, the heels "tapping" on the floor, and with the deformity corrected as much as possible by voluntary effort. Teach the patients to "make" a hip where one is lacking and to depress the high shoulder.

2. Standing in the proper position, with the heels against the wall, the patient then endeavors to touch the wall with the small of her back; that is, to make the back as flat as possible.

3. *Bending.*—Patient leans forward with knees extended and touches the floor with her fingers. She then resumes the correct position and rises off her heels. This should be repeated 50 or 100 times daily.

4. *Rocking.*—With heels on the floor, hands on the hips and elbows out straight, the patient swings as far as possible from side to side.

5. *Twisting.*—With hands clasped behind her head, the patient twists around first to one side, then to the other.

6. *Dipping.*—With trunk and head perfectly erect and with hands on hips, the patient flexes her knees and hips and sinks directly downward. The tendency with this is almost always to flex the trunk also.

7. In this the hands and arms are stretched out in front, with palms together, and are then brought violently backward in the horizontal plane as far as possible.

8. *Swinging.*—This reminds one of a patent top spinning on a string, and is a combination of 3 and 4. With the hands on the hips, the whole trunk rotates on the pelvis as a fixed point, the head describing a more or less complete circle.

9. *Table Exercise.*—The patient lies prone on a table, with trunk projecting over the edge, and with feet and legs held down by the instructor.

She then flexes and extends her trunk as much as possible.

Other exercishes may be devised to suit special cases, but these will be found useful for the general run. The patients are taught to walk properly, not to mince or to strut. They are provided with rings and a horizontal bar, and are encouraged to fence, usually with the left hand, and to swim. They must be made to understand that the final results depend largely on themselves, and by ridicule, reproofs, exhortation and encouragement must be spurred on to persevere. In most of them a pride of personal appearance can be awakened that will come strongly to our aid.

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THE EFFECT OF INTESTINAL ANTISEPSIS ON THE EXCRETION OF HIPPURIC ACID IN THE URINE.*

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IN 1824 Wohler[1] furnished the first example of a true synthetical process which occurred within the animal organism. He showed that when benzoic acid was introduced into the stomach it appeared as hippuric acid in the urine.

This synthesis may be expressed by the following equation:

$C_6 H_5 COOH + NH_2 CH_2 COOH = NH_2 (C_6 H_5 CO) CH_2 COOH + H_2O$.

Benzoic acid+glycocoll=hippuric acid+water.

Gonnerman[2] has shown that gelatin on decomposition yields a large amount of glycoll (9 per cent.); Fischer found 16 per cent., and Levene[3] found in gelatose or gelatine proteoses, whose elementary composition does not essentially differ from that of the gelatin, a still larger amount (20 per cent.). In addition it yields amido acids such as leucin, aspartic acid and glutamic acid, also phenylacetic and phenylpropionic acids, but no tyrosin, indol or skatol, in which it differs from the proteids. Maly[4] has shown that gelatin on decomposition also yields (besides the bodies already mentioned) considerable quantities of benzoic acid.

The purpose of the following experiments is to determine:

1. What effect the feeding of gelatin (which on decomposition yields both benzoic acid and glycocoll) has on the excretion of hippuric acid in the urine.

2. The effect on the excretion of hippuric acid when there was putrefaction going on in the intestinal canal.

3. The effect on the excretion of hippuric acid when the intestinal canal was made antiseptic by calomel.

4. The effect of intestinal antisepsis upon the excretion of nitrogen.

5. Lastly, what effect gelatin had on the burning of tissue in the body.

Before going on with the experiments, a short history of hippuric acid would not be out of place. Hippuric acid was so called by Liebig because he first found in in the urine of horses. It is well known that hippuric acid occurs in large amounts in the urine of herbivora and only in small amounts in the urine of carnivora. This large amount of hippuric acid in herbivora may be partly explained by the fact that vegetable foods contain large amounts of aromatic substances, such as toluol, cinnamic acid, and hydrocinnamic acid, which, upon oxidation and chinic acid upon reduction, may be converted into benzoic acid within the organism; this benzoic acid so formed combines with the glycocoll, thus forming hippuric acid.

Salkowski[5] found hippuric acid in the urine of starving dogs, as well as in the urine of dogs fed exclusively on a meat diet; this is explained by the fact that phenylacetic and phenylpropionic acids are formed in proteid putrefaction, and these are subsequently burned to form benzoic acid which combines with glycocoll to form hippuric acid.

Where is Hippuric Acid Formed?—This question has been made the subject of numerous investigations, but as yet there has been no positive proof as to the exclusive place for this synthesis. Jaarsfield and Stokvis[6] maintained that the synthesis of hippuric acid occurred not only in the kidney but also in the intestinal canal; Bunge and Schmiedeberg thought that the exclusive place for the synthesis of hippuric acid was in the kidneys.

C. Lewin[7] found that the excretion of hippuric acid in gout and diabetes is normal; in appendicitis he found nearly two grams increase; in fever he found a decrease, and in kidney disease he found an increase, never a decrease; this is a point against the theory that the kidneys are the only seat of the formation of hippuric acid.

In intestinal putrefaction, and in all intestinal diseases, hippuric acid is always increased.

In estimating the amount of hippuric acid I used the method of Salkowski and Blumenthal, as this was found to be most reliable.

Experiment I.—In this experiment a bitch weighing 10 kilos was starved for four days. On the third day her bladder was washed out with warm sterile water. At 9 A.M. on the third day of starvation she was catheterized, and both hippuric acid and nitrogen determinations were made. We always used twenty-four-hour specimens of urine throughout the whole series of experiments.

After the four days of starvation, the dog was fed on gelatin for three days. She received 50 grams the first day (25 grams at 9 A.M. and 25 grams at 5 P.M.), 50 grams the second day, and 25 grams the third day. The gelatin was dissolved in 250 c.c. of water, and this was passed into the stomach through a catheter.

After the introduction of 50 grams of gelatin

* From the Chemical Laboratory of the New York University and Bellevue Hospital Medical College. This thesis was awarded the William T. Lusk Memorial Science Prize in 1904.

it was noticed that the urinary nitrogen increased.

Fifty grams of gelatin contains 6.44 grams nitrogen, as determined by the Kjeldahl process; and there was 6.95 grams nitrogen excreted, showing that some of the body proteid was burned in addition. The amount of proteid burned in the cells depends upon the constitution of the fluids feeding the cells. This has a direct bearing on the feeding of gelatin, because Voit in his experiments showed that no matter how much gelatin was fed it was completely burned and some of the body's proteids in addition; therefore gelatin never builds up new tissue, although it may to a large extent protect the body proteid from decomposition. It is also evident that no matter how much gelatin be fed the tissue proteid continues to be largely destroyed. This is shown in Experiment I, second and third day feedings, and Experiment II, third and fourth day feedings.

After the three days of gelatin feeding the dog was again starved for three days to see the effect on the excretion of hippuric acid and nitrogen. On the first day after feeding a marked drop in the excretion of nitrogen was noticed. This is due to the following: It is well known that during the first period of starvation, the elimination of nitrogen is greatest, and the quantity of the same depends essentially upon the amount of proteids in the organism, and the nature of the food previously taken. The richer the body is in proteids from the food previously taken the greater is the elimination of nitrogen during the first days of starvation. The rapidity with which the elimination of nitrogen decreases in the first days depends also (according to Voit) upon the proteid condition of the body. It decreases more quickly, that is, the curve of decrease is more sudden during the first few days of starvation, as a rule, the richer in proteids the food was, which was taken before starvation. This is apparent from the following experiments which I made, showing four starvation periods. In Experiment I in the third and fourth days of starvation the nitrogen has reached its lowest limit, which after the introduction of 125 grams of gelatin, this being given in divided doses, we see in the first day of starvation following the feeding a marked and sudden decline in the nitrogen from 6.09 grams to 1.84 grams.

In Experiment II, Table II, we notice in the starvation period previous to the feeding a gradual decline in the elimination of nitrogen. But after feeding 150 grams of gelatin the nitrogen drops from 7.18 grams (last day of feeding) to 1.76 grams (first day of starvation after feeding). After this sudden drop there is a gradual diminution in the excretion of nitrogen. The amount of hippuric acid excreted is proportionate to the amount of gelatin fed. In starvation the amount excreted is practically the same throughout the whole experiment.

Experiment II.—In contrast with Experiment I the dog was fed on a mixed diet for a period of seven days; this feeding was followed by a period starvation lasting six days, and on the last four days of this starvation period hippuric acid and other determinations were made.

The dog was also given one-fourth grain of

Experiment I—Table I. *Dog Weighing 10 Kilos.*

Date. 1904.	Period.	Amt. of Gelatin Fed.	Urine. Total	Reaction.	Total Hippuric Acid.	Total Nitrogen.	Remarks.
Jan. 12	3d day of Starvation	.....	225 cc.	Acid	0.1252 Grams	2.072070 G.	Starvation.
Jan. 13	4th day of Starvation	.....	182 cc.	Acid	0.1201 Grams	2.063025 G.	Starvation.
Jan. 14	1st day of Feeding	9 A.M. 25 Grams 5 P.M. 25 Grams	446 cc.	Acid	0.2240 Grams	6.954068 G.	50 G. Gelatin Fed.
Jan. 15	2d day of Feeding	9 A.M. 25 Grams 5 P.M. 25 Grams	509 cc.	Alkaline	0.2990 Grams	6.992920 G.	50 G. Gelatin Fed.
Jan. 16	3d day of Feeding	9 A.M. 25 Grams	293 cc.	Acid	0.3152 Grams	2.910194 G.	25 G. Gelatin Fed.
Jan. 17	1st day after Feeding	.....	156 cc.	Acid	0.2408 Grams	1.848960 G.	Starvation.
Jan. 18	2d day after Feeding	.....	128 cc.	Acid	0.1433 Grams	1.814860 G.	Starvation.
Jan. 19	3d day after Feeding	.....	143 cc.	Acid	0.1226 Grams	2.046020 G.	Starvation.

50 grams Gelatin contain 6.44 grams Nitrogen.

Experiment II—Table I. *Dog weighing 8.5 Kilos.*

Date. 1904.	Period.	Amt. of Gelatine Fed.	Total Calomel in 24 hours. Grams.	Total Urine. c.c.	Reaction.	Total Hippuric Acid. Grams.	Total Nitrogen in 24 hours. Grams.	Ethereal Sulphates.	Remarks.
Jan. 27.	3d day Starvation	.....	2.5	186	Acid	0.1850	2.608320	Abundant	Starvation
Jan. 28.	4th day Starvation	.....	2.5	140	Acid	0.1776	2.492620	Abundant	Starvation
Jan. 29.	5th day Starvation	.....	2.5	178	Acid	0.1748	2.098840	Moderate	Starvation
Jan. 30.	6th day starvation	.....	2.5	143	Acid	0.1118	2.144880	Traces	Starvation
Jan. 31.	1st day of Feeding	9 A.M. 25 Grams	4.5	250	Acid	0.0702	2.807500	Faint Traces	Feeding
Feb. 1.	2d day of Feeding	9 A.M. 25 Grams	4.5	275	Acid	0.0558	2.971020	Faint Traces	Feeding
Feb. 2.	3d day of Feeding	9 A.M. 25 Grams 5 P.M. 25 Grams	6.5	686	Alkaline	0.0338	7.056544	Absent	Slight Diarrhea
Feb. 3.	4th day of Feeding	9 A.M. 25 Grams 5 P.M. 25 Grams	6.5	580	Acid	0.0546	7.181792	Absent	Diarrhea
Feb. 4.	1st day after Feeding	.....	....	182	Acid	0.1188	1.768556	Traces	Starvation
Feb. 5.	2d day after Feeding	.....	....	143	Acid	0.1842	1.286353	Moderate	Starvation
Feb. 6.	3d day after Feeding	.....	....	160	Acid	0.2018	1.461350	Moderate	Starvation

In 50 grams of Gelatin there are 6.44 grams of Nitrogen.

calomel every three hours to see the effect of intestinal antisepsis on the excretion of hippuric acid. The ethereal sulphates were tested for in the urine to see whether the calomel was acting. On the sixth day of starvation in Table II we notice that there are only traces of the ethereal sulphates in the urine; this has marked effect on the excretion of hippuric acid, as is shown by the drop in the amount excreted.

The nitrogen is at practically the same level throughout this period of starvation in which calomel is being given, showing that calomel has no effect whatever on the excretion of nitrogen.

After the dog had been starved for six days, she was given 25 grams of gelatin the first two days and 50 grams the succeeding two days. She was also given one-fourth grain of calomel every three hours and two grains with each feeding.

We notice here that as the intestinal canal is growing more and more antiseptic the excretion of hippuric acid is growing less and less; this is seen in Table II, first and second day feedings.

On the third day feeding, we find that the dog excreted 7.05 grams nitrogen, this shows that the dog must be burning her own proteid, because only 6.44 grams of nitrogen were introduced in the form of 50 grams of gelatin. This bears out Voit's theory that no matter how much gelatin is fed, it is completely burned and some of the body's proteid with it.

We also find that on this day the ethereal sulphates have entirely disappeared from the urine. Baumann[8] has demonstrated that when the intestinal canal is free from putrefactive processes the ethereal sulphates then disappear from the urine: this has a marked effect on the excretion of hippuric acid, as is shown in Experiment II, Table I; we notice that on this particular day there was less hippuric acid excreted than on any other day during the experiment, in spite of the fact that 50 grams of gelatin were given. If we compare the result obtained when putrefaction was going on and when the canal was made antiseptic we see a marked difference. In Experiment I, Table I, there was 0.2990 grams of hippuric acid excreted when putrefaction was going on in the intestinal canal, while in Experiment II, Table I, under exactly the same conditions, except that the canal was made antiseptic, there was only 0.0338 grams excreted.

The fourth day feeding is a continuation of the third day; the conditions were exactly alike.

After these four days of gelatin feeding the dog was starved for three days, and the calomel was also discontinued to see the effect it had on the excretion of hippuric acid and nitrogen. On the first day of starvation we see a sudden drop in the excretion of nitrogen; this sudden drop from 7.18 grams to 1.76 grams shows remarkably well the theory of Voit, that the richer the food is in nitrogen given the day previous to starvation the more sudden the drop will be in the excretion of nitrogen during the first few days of starvation.

During these last days of the experiment we find that as the intestinal canal is getting less and less antiseptic, the excretion of hippuric acid increases proportionally; this is due to the increased putrefactive changes going on within the intestinal tract.

Conclusions.—From the results of the foregoing experiments we can conclude:

1. That the feeding of gelatin alone increases the excretion of hippuric acid.

2. That when putrefactive changes are increased the excretion of hippuric acid is increased and *vice versa.*

3. That when the intestinal canal was made antiseptic with calomel there was practically no hippuric acid excreted.

4. Intestinal antisepsis has no effect whatever on the excretion of nitrogen.

5. No matter how much gelatin was fed it was completely burned and some of the body's proteid with it.

6. Therefore gelatin never builds up any tissue, although it may to a certain extent protect the body's proteid from decomposition.

I am greatly indebted to Prof. John A. Mandel for valuable aid and suggestions in these experiments.

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MEDICAL PROGRESS.

MEDICINE.

Typhoid Fever in Relation to the Urban and Rural Population of the United States.—SENECA EGBERT (*Am. Med.*, April 22, 1905) shows by reference to the United States Census Report on Vital Statistics for 1900, and by means of graphic charts illustrating the numerical data of his Report, that typhoid fever is much more prevalent in the rural portions of the country. He attributes this high incidence of the disease to the unsanitary conditions prevalent in the many towns and villages that, being under 8,000 in population, are too small to be classed with the urban, which, therefore, make up a large part of the so-called rural population. He concludes: (1) Popular education as to the causation and dissemination of typhoid fever and similar maladies is especially important in the localities and districts indicated by the charts. (2) It is the duty of physicians to impress upon their typhoid patients the importance and necessity of disinfection measures, not only during but also long after convalescence. (3) The profession should urge improvement, purification and care of public water supplies, and should induce those depending on private or suspicious sources to protect themselves against the danger of infection. (4) The profession should work for uniform and satisfactory registration laws and methods, as these always reflexly foster improvement in sanitary conditions.

Paratyphoid Fever.—JOHN NORMAN HENRY (*Am. Med.*, April 15, 1905) says there are two varieties of paratyphoid fever produced by organisms which differ

from each other only in minor cultural peculiarities. These two forms are difficult to distinguish either from one another or from typhoid fever. Of diagnostic importance in paratyphoid fever are the more abrupt onset and the earlier arrival of the acme of the disease as compared with typhoid. Otherwise the symptoms and course of these two affections may be similar, though the course of parayphoid is usually shorter. Spots, splenic enlargement, nose bleed, hemorrhages, and a large number of complications may be present in these allied infections. The question of the possibility of a double infection of typhoid fever and paratyphoid has been raised by the presence in some cases of a double agglutination reaction of about the same degree of positiveness. Before this may be assumed as a certainty, however, it is necessary either to recover simultaneously both organisms from the blood of the patient suspected of being the subject of a double infection, or to saturate out the specific and group agglutinins of one infection and demonstrate the presence of the others. As yet these double infections have not been proved, though the saturation tests have not been applied to any great extent in these diseases. The pathology differs widely from that of typhoid fever, the autopsy findings being largely those of a septicemia. In some cases ulceration of the intestine has been found, but the ulcers have been of dysenteric type and Peye's patches have altogether escaped. The mortality has been placed at about six per cent., being somewhat less than that of typhoid Dr. Henry reports six cases.

Transient Functional Hemiopia.—C. J. Kipp (*Journal A. M. A.*, April 22) describes the condition known under this name and sometimes spoken of as scintillating scotoma, teichopsia, ophthalmic migraine, etc. He finds it generally hemiopic in form. The condition is not always described in text-books, but as its first appearance is apt to be alarming to the patient, it is well, he thinks, that the symptoms should be given in detail. Repeated attacks generally result in indifference on the part of the patients. They are often of the nervous type, and frequently have other neurotic symptoms. They are usually in good general health, and are often free from refractive errors, and, in most of his cases, even free from muscular ocular defects. The exciting causes and pathology are not very well known, but Kipp is inclined to believe that in most cases there is a temporary functional derangement of the cells of the cerebral optical mechanism, and he quotes Jolley, who says that in the most frequent hemiopic form the cells of the optic tract or of the internal geniculate body are involved; that the binocular, central and hemiopic scotomata which cross over the median line originate more peripherally, probably in the region of the chiasm; and that the purely monocular scotoma originates in the optic nerve or retina. For treatment he suggests rest during the attack, usually in a recumbent position. He quotes Gower's advice as to the treatment of migraine by correction of any errors in living, by avoidance of hot, crowded rooms, in case of inherited gout proper treatment for this condition, and in cases with marked pallor, the use of minute doses of nitroglycerin during the intervals of the attacks. As regards cutting off the attacks he has no definite advice to offer.

Let the Lungs Alone in Consumption—W. Hutchinson (*Med. Rec.*, April 29, 1905) says that it has been learned by bitter experience that one must practically ignore the bacillus in the treatment of the consumptive, and that the same point of view is being arrived at in regard to the lungs. Among the reasons for letting the lungs alone in treatment is the fact that very few remedial measures at command have any specific action whatever on the lungs, and it is being more and more clearly recognized that consumption is not, properly speaking, a disease of the lungs, but is merely a local (pulmonary) expression of a disease which involves the entire system. There are no tonics or alteratives which improve the nutrition of the lungs, and even the expectorant drugs have been proved to be lacking in the virtues formerly ascribed to them. Sprays, etc., are ineffectual in reaching the bronchi, and in most cases the so-called pulmonary gymnastics and exercises serve simply to drive the infectious material deeper into the hitherto uninvaded areas of the lungs. The author has already shown that the chest of the consumptive is round instead of flat, and that exercises intended to develop the chest as such do harm instead of good. Bodily exercise of any kind is now believed to be distinctly injurious, and absolute rest is indicated in any case in which the afternoon temperature rises above 100° F. Researches by Robin and Binet made over four years ago on the actual gaseous interchange in consumptives have shown that the tuberculous patient consumes a much greater amount of oxygen and gives off more carbon dioxide in proportion to his body-weight than the normal individual. In short, it would appear highly probable that the tuberculous patient is to be regarded in the light of one who is pouring nearly half the heat of the fuel which is burned in his body furnace up the chimney, in the form of smoke; that the food which he takes, instead of being assimilated and decomposed by anærobic processes in the body cells, is burned in the blood and in the lungs. Any means, therefore, which will tend, so to speak, to clog the throat of his chimney and prevent this fatal escape of heat and energy, whether by drugs like creosote, iodoform, cod-liver oil and arsenic, or by pouring in an enormous quantity of food rich in heat value, will tend to restore the balance of gaseous interchange and enable him to return to the normal.

Multiple Myeloma (Kahler's Disease).—J. Collins (*Med. Rec.*, April 29, 1905) describes this case, which, he states, is the tenth to be reported in this country, while not more than 35 cases in all have been recorded at the present time. The patient was a man of fifty-six years, whose illness lasted about three years in all. The most conspicious symptoms were severe pains in the back and limbs, hyperesthesia of the legs and loss of bladder control. At the autopsy most of the organs were found to be the seat of a chronic connective tissue growth, and in the bones were small round tumor masses. The author says that the following features are worthy of emphasis. In the first place, there was no deformity or alteration in the contour of the bones to be made out during life. Despite the fact that the substance of the bone was so largely replaced by new growth, and the existence of rarefying osteitis to a high degree, there were no indications that there had ever been fractures or dislocations. In the second place, at no time was the peculiar peptone, supposed to be pathognomonic of the disease, found in the urine, and whereas other cases have been reported in which albumose was not found in the urine this would seem to be the first case which was for a long time under observation in which repeated examination of the urine, extending over several months, during which time the disease was fully developed, failed to find albumose. Detailed pathological reports and drawings are appended.

Multiple Myeloma.—In commenting on Dr. Collins' report S. J. Meltzer (*Med. Rec.*, May 6, 1905) says the writer describes the case of a man who during

the last two years of his life suffered excruciating pain all over his body and became greatly emaciated. At the post-mortem it was found that the marrow of all the bones was invaded by tumor masses containing round and spindle cells. Dr. H. Oertel, who performed the autopsy, is quoted as saying that he was willing to designate the tumor masses as myeloma because "this term has been used as one of situation rather than histogenesis." Dr. Harlow Brooks, to whom a series of sections were submitted, was "of the opinion that the growth was unquestionably a myeloma." The urine of that patient was examined at several periods during these two years, and at no time a trace of Bence Jones' albumose could be detected. Dr. Collins states that cases of Kahler's disease on record number now about 35, and that his case is the tenth reported from this country. He sees the importance of this case in the fact that the urine contained no albumose, and that, therefore, this case negatives the statement that the occurrence of albumose is pathognomonic for this disease. The last statement Dr. Collins quotes from his paper on "Myelopathic Albumosuria." The difference between Dr. Collins and himself is, he believes, easily cleared up. Dr. Meltzer described a case of myelopathic albumosuria. The 39 cases of myelopathic albumosuria, or Kahler's disease, which are now on record, and nine of which are reported from this country, all had Bence Jones' albumose in their urine. The presence of that albumose in the urine of such patients can, therefore, be considered as pathognomonic for myelopathic albumosuria or Kahler's disease. The case of Dr. Collins', however, was not one of Kahler's disease, but was apparently a case of multiple myeloma of the type described by Buch, Runneberg, Hammer, Marckwald, Wieland, Abrikassoff, and many others. As far as he knew, none of these cases is included in the list of Kahler's disease. It is true that as far as is known at present, all cases of Kahler's disease have their origin probably in multiple myeloma. But it is also pretty safely established that not all cases of multiple myeloma lead to albumosuria. Kahler's disease, or, still better, myelopathic albumosuria, is a clinical entity; multiple myeloma, however, is an anatomical designation for post-mortem findings which might yet prove to be a group of heterogeneous characters. The histogenesis of these tumors is certainly not yet a settled point. He referred to the conflicting statements by Wright and MacCallum in this country. Dr. Collins' case, in which all the bones were involved and in which none of them had shown any outward sign of the pathological condition present in the marrow, differs also in that regard from most of the cases of myelopathic albumosuria. Finally, he added that his statement that "the occurrence of albumose in the urine is pathognomonic for this (Kahler's) disease" can logically be disproven not by cases of multiple myeloma without albumose in the urine, but by cases having albumose (in perceptible quantity) in their urine without presence of myeloma in the bone marrow. Such cases have not yet been observed.

System and Expedition in Office Practice. Office Plans and Details.—R. L. DICKINSON (*Med. Rec.*, May 6, 1905) discusses the numerous methods by means of which it is possible for the physician to economize time in office work and so increase his capacity for work. Expedition may be effected in several ways, such as by well-planned quarters, by completeness of outfit, by appointments and by selection among waiting patients, in history taking, and by proper assistance. All of these topics are discussed at length, especial attention being devoted to a consideration of the manner in which the available space of an ordinary city house may best be utilized for office purposes. A large number of plans are reproduced, showing what may be done under different conditions, and many practical hints in regard to methods of securing sound-proof doors and partitions, economizing space, arranging sterilizers, etc., are given. The most convenient methods of illumination and numerous details facilitating office treatment are also described, for all of which reference must be made to the original.

PHYSIOLOGY.

The Theory of the Antagonistic Effects of Saline Solutions.—An explanation of the peculiar antagonisms which saline solutions have for one another, is offered by J. LOEB (*Pflüger's Archiv*, March 28, 1905). It is a fact that the recently fertilized egg of *Fundulus* develops both in distilled water and in sea water, but if brought into a salt solution having the same concentration in which salt is present in sea water, it quickly dies. But if to the salt water be added a small quantity of a salt of a bivalent metal, even such poisonous substances as $Ba\,Cl_2$, $Zn\,SO_4$, etc., the latter will allow the embryo to develop. In this case the zinc sulphate not only lessens the toxic action of the sodium chloride, but also the latter inhibits the poisonous effect of the former. This antagonism is probably to be attributed to the fact that the pressure of the one salt retards the diffusion of the other into the egg. The young *Fundulus*, which has just hatched from the egg, can live for quite a long time in distilled water or in sea water, but it will quickly die in a pure solution of common salt, containing the latter in the same proportion as sea water. This toxic action may be renewed by the addition of $Ca\,Cl_2 + KCl$. Calcium or potassium, alone, is not sufficient, but both together inhibit the toxicity of sodium chloride.

Anticoagulating and Toxic Action of Transfusions of Foreign Blood.—By transferring into the dog the blood of other species, I. SALVIOLI (*Arch. Ital. de Biol.*, Jan. 28, 1905) found that the latter produced the following modifications in the blood of the former: a loss of coagulability and also a toxic action. This coagulating power is possessed by the defebrinated as well as the normal circulating blood, and also by the serum, the plasma and the red blood cells. These all possess also the same toxic power. This toxicity is shown in a diminution of the blood-pressure, and a cardiac and a respiratory paralysis. The author has also shown that certain alexins (hemolysines and spermatoxines) are present not only in the serum but also in the plasma. These facts all have a certain importance, since they tend to weaken somewhat the theory maintained so stoutly by Metchnikoff, namely, that the various antitoxic properties of the serum are originally derived from the leucocytes.

The Effect of Bitters on the Secretion of the Gastric Glands.—Notwithstanding the widespread use of bitters, the mechanism of their action is practically unknown. STRASHESHKO (*Roussky Vrach*, March 26, 1905) undertook a series of experiments on a dog to determine this action, and states, first of all, that bitters tend to increase the so-called "psychologic" flow of the gastric juice, but whether this depends on the increased reflex action or on some complex nervous act in which the brain cortex participates, is as yet a question for the future to decide. As regards the practical results to be drawn from the above, we should consider the following in pre-

scribing bitters: (1) Administer small amounts of bitter drugs, for large doses are apt to produce an effect exactly opposite to the one desired, while a continued use of such will eventually result in a condition of hyposecretion. (2) Bitters should be prescribed in such forms that when taken internally the nerves of taste should be irritated; we thus must avoid pills or capsules. (3) Bitters should be taken before meals.

The Functional Condition of the Stomach in Cicatricial Stenosis of the Esophagus.—A case that had been gastrostomized for complete closure of the esophagus, enabled H. Surmont and M. Dehon (*Arch. de Méd. Expér.*, March, 1905), to study the functional capacity of the stomach during this condition. The case presented a stomach completely isolated from the upper part of the alimentary tract. There was preservation of the stomach mobility, a complete suppression of the psychic secretion of gastric juice, a complete disappearance of the free hydrochloric acid from the latter, a persistence of peptic digestion, and an intermittent secretion of the rennetic ferment, which is only excited by the presence of milk.

The Study of Digestion Leucocytosis.—An experimental study of digestion leucocytosis in the dog was made by J. Nicholas and C. Cot (*Arch. de Méd. Expér.*, March, 1905). In the healthy fasting dog, digestion leucocytosis is not observed at the periods of the customary meals. However, an undoubted hyperleucocytosis has been seen in a fasting animal. The amount of digestion leucocytosis varies in different animals. It also varies according to the nature of the foods. The latter have accompanying their digestion the greatest leucocytosis in the following order: Raw beef, fat, milk, cooked beef. Three months after splenectomy has been performed one can't observe no change in the digestion leucocytosis.

Histological Changes in the Spleen During the Digestion of Albuminoids.—A study of these changes was made by C. Ciaccio and B. Pizzin (*Arch. de Méd. Expér.*, March, 1905) with the following results: During digestion there is a hyperemia of the spleen, such as occurs in all the splanchnic organs of the abdomen. The cytogenic power is enormously exaggerated, and the spleen pours into the blood cellular elements belonging to both the lymphoid and the myeloid series. This accounts for the leucocytosis that occurs during digestion, particularly that of proteids. By means of this cytogenesis, the spleen effects the passage into the blood of a substance capable of transforming trypsinogen into trypsin. Whether this substance is derived from the breaking down of leucocytes (leucolysis), which is known to occur during digestion, or whether it is the result of secretion by other cells (megakoryocytes), it is as yet impossible to tell.

Oscillations of Excitability of the Nerve Centers Synchronous With Stimulation.—Two years ago, Fano described certain automatic oscillations in the excitability of the reflex centers of the spinal cord, which oscillations he found were independent of the stimulation. This subject has been carefully worked over by G. A. Pari (*Arch. Ital. de Biol.*, Jan. 28, 1905), who finds that by varying the frequency of the stimulation one may vary the character and frequency of the oscillations. The oscillations are detected by stimulating electrically one sciatic nerve of a decapitated frog, at regular intervals, the stimulus being the same in all cases. It is responded to by contractions of the gastrocnemius muscle of the opposite limb. While the stimulus is always of the same strength, the muscular contractions vary, the alternate contractions being weaker. It has been shown that this alternation is not the result of any changes in the muscle or nerve, for it does not occur in stimulation of the latter. It is the result, rather, of definite oscillations in the excitability of the reflex centers of the spinal cord. The author has observed a perfect correspondence, however, between the rate of these oscillations and the rate of the stimulation. Thus, the duration of each wave of excitability is exactly double the interval between the succeeding stimuli. If a few stimulations be occasionally omitted, the oscillations continue with the same multitude as before. This shows that the oscillations are not the result of the electrical stimulation, but are truly automatic. The author explains these oscillations on the basis of an alternation of the predominance of either assimilation or dissimilation. The correspondence between the oscillations of excitability and the frequency of stimulation may be interpreted as a synchronization, that is, as a tendency of the automatic oscillations to take the rhythm of the stimulation without losing their character of automaticity. In the absence of external stimulation, the processes of nutrition in the nervous centers have a periodic course, represented graphically by a wavy line. With repeated stimulation there is a rapid catabolism, accompanied or followed by a rapid anabolism. This explains the synchronization between the rhythmic variations in the excitability and the stimulation. Analogous to this are the various forms of synchronization known to physicists. Of extreme interest are the applications of this principle to other physiological phenomena. Thus the rhythmic succession of inspiration and expiration is determined by a truly automatic succession of rhythmic changes in the respiratory center, corresponding to the predominance of anabolism and catabolism in turn. These rhythmic changes may, however, assume the tempo of the stimulation to which the respiratory center may be subjected, as by the condition of the blood. It is well known that the pace of marching men automatically adjusts itself to the rhythm of the music played, while it has been observed by Weber and Landois that the pace has a tendency to become synchronous with the pulse. In the domain of habits the race has adjusted its periods of works and sleep to the alternation of day and night. It is possible, however, to change this synchronization by taking one's sleep during the day. The power of awaking at a fixed time is an example of how one can, by the stimulating power of the will, change the rhythm of sleeping and waking. Our appetite returns at the hour at which we are accustomed to take our meal. The expression "to get accustomed to a thing," or "to acquire a habit," signifies that the nervous mechanism has adjusted itself to the rhythm of the stimulation to which it has been subjected.

Osteoakusia and Its Relations to the Perception of Vibrations.—That the bones can transmit vibrations of sound to the auditory organ, is demonstrated by the familiar test of stopping the external auditory canals and applying the tuning fork to the side of the head. W. Neutra (*Deutsche Ztsch. f. Nervenheilk.*, Vol. 28, Nos. 2-4), finds that sounds may be heard by applying the tuning fork to various parts of the body, the sonorous vibrations being transmitted by the various bones. To this phenomenon the term osteoakusia has been applied. This is more marked if the tuning fork be applied where the

bones come near the surface of the body. Disease of the bones and joints, such as swellings, inflammations, fractures, etc., have no effect upon the osteoakusia. From the transmission of sound by bones must be distinguished the perception of vibrations by the body. A vibrating instrument, applied to the skin, is perceived in this way: The vibrations are not carried by the bones, but are reflected by them to the end-organs in the skin, As a test for malingering or hysteria osteoakusia is of some value. The person feigning sickness is apt to deny that he perceives the sound of the tuning fork when applied near a bone, yet no known disease can impair the transmission of sound by the latter.

The Influence of Meat Diet on the Thyroid and Parathyroid.—That these glands are intimately bound up with the general metabolic functions has been abundantly demonstrated. An exclusive meat diet produced well-marked histological changes in the thyroid, according to CHALMERS WATSON (*Proc. Physiol. Soc., Jour. Physiol.*, Feb. 28, 1905), but has no effect on the parathyroid. In the animals experimented upon, death followed in a few months after the meat feeding had been begun.

Observations Upon Cheyne-Stokes' Respiration.—The physiology of the irregular form of respiration designated Cheyne-Stokes is still clouded in mystery. The researches of M. S. PEMBREY and R. W. ALLEN (*Proc. Physiol. Soc., Jour. Physiol.*, Feb. 28, 1905), tend to show that this type of breathing is due to a lowered excitability of the nerve centers. The accumulation of carbonic acid in the blood causes an increase in the respiratory rhythm, with the production of a true dyspnea, as the result of which the carbon dioxide is washed out of the blood, when apnea follows. This is the regular course of Cheyne-Stokes breathing. This conditon is found not only in disease, but also during health, being seen frequently in young children, in conditions of fatigue, during sleep, etc.

A Second Coagulation of the Blood.—The physiology of the coagulation of the blood has been actively investigated within the past few years, and interesting results have been obtained. E. T. REICHERT (*Jour. f. Exp. Med.*, April 25, 1905) has found that fibrinogen is not the only substance in the blood that clots, for after removal of the fibrinogen the blood is still capable of clotting. Upon saturating the blood with neutral oxalate the fibrinogen is prevented from coagulating, but the second substance is coagulated. This result shows that the second substance is quite distinct from fibrinogen.

PEDIATRICS.

Acetonuria in the Infectious Diseases of Children.—That aceton, diacetic acid and oxybutyric acid are frequently found in the urine of children suffering from infectious diseases, is the observation of L. F. MEYER (*Jahrb. f. Kinderheilk.*, March 1, 1905). The production of these substances is to be attributed to the poverty of carbohydrates in the diet, for a disappearance of acetone and similar bodies from the urine follows the administration of larger quantities of carbohydrate by the mouth. The ingestion of fat increates the acetonuria. The appearance of oxybutyric acid is an indication of a more intense disturbance of oxidation. These observations in the significance of acetonuria in infectious diseases are in agreement with what is already known about acetonuria, and indicate no special value of this symptom in infectious diseases.

Acidosis in Childhood.—The amount of aceton in the urine of children, while absolutely not as great as that of adults, is, relative to the body-weight, greater, according to L. LANGSTEIN and L. F. MEYER (*Jahrb. f. Kinderheilk.*, March 1, 1905). The younger the child, the greater the acctonuria. The greater part of the aceton formed in the body of children is eliminated by means of the lungs. This is not the case in adults. The total amount of acetone eliminated by younger children as the result of deficient carbohydrates in the food, is greater than in older children and in adults. Oxybutyric acid and diacetic acid appear earlier in children under these circumstances than in adults. In these children, also, there is a rise in the excretion of ammonia. This is due to the fact that the non-oxidizable organic acids in the circulating blood attract the ammonia compounds and then render them capable of excretion. The general condition of the children presenting the signs of acidosis was practically the same in all the cases. The children were listless, tired and depressed. This may have been the result of the restricted diet rather than of the acidosis. The authors' researches show that children have a greater disposition to acidosis than adults. This they explain on the basis of the fact that the reserve supply of glycogen in the muscles and liver is not as great in children as in adults, so that poverty of carbohydrates in the diet gives an easier and more intense manifestation of acidosis.

Rectal Gonorrhea in Infantile Vulvovaginitis.—The frequency with which these conditions may be associated, is shown by the investigations of K. FLÜGEL (*Berl. klin. Woch.*, March 20, 1905). He found that among 56 hospital cases of infantile gonorrhea, there was present an involvement of the rectum in 20 per cent. A search was made in each case, even if no external symptoms were evident, by passing a platinum loop into the rectum, and in many cases this had to be repeated several times before a positive result was obtained. The infection probably takes place from the vagina, especially where a profuse discharge is present. In addition to treatment directed to the vulva and urethra, it is well to keep a pad over the vulva as a prophylactic measure. The rectal treatment consisted of the application of suppositories of nitrate of silver or ichthyol, or irrigation of the rectum with nitrate of silver, 1/3,000. It was found that the rectal secretion was freed from gonococci sooner than that from the vagina, which may be accounted for by the fact that the rectal mucosa does not offer as favorable a field for the growth of the gonococci as that of the vagina or the urethra. This investigation shows that in every case of infantile gonorrhea it is necessary to carefully examine the rectum and to institute proper treatment at an early date.

Drug Intoxication in Children.—A number of useful general reflections on the subject of the untoward consequences produced by the remedial agents administered to children, are made by G. BOSE (*Rev. Mens. des Mal. de L'Enf.*, April, 1905). It is possible to pursue an efficient and yet innocuous therapeusis. One must, first of all, disabuse one's mind of the fallacy that every case demands a drug. The anxiety of the parent that the disease requires a prescription should not influence the physician. Specific medication is the goal—serum of Roux for diphtheria, salicylate of soda for acute rheumatism, etc. As to the diseases for which there is no known specific, one must remember that most diseases have a natural tendency to a cure, which tendency need only be supported by a few general hygienic rules or a simple prescription. The observance of these principles may save the infant intoxications

which, however light, may not be without danger. The physicians may then be spared the disagreeable consciousness of having produced an arsenical neuritis after having cured a case of chorea, or of having produced a marked mercurial stomatitis in treating a syphilitic child. As to the rules for exact dosage, these cannot be formulated, for each infant reacts in its own peculiar way to the dose employed.

Infant-Feeding with Székely's Milk Preparation.—This form of modified milk is being largely used in Austro-Hungary. It is prepared as follows: Skimmed milk is warmed to 60° C., and then put under a pressure of 20 to 25 atmospheres, when with the aid of CO_2 the casein is thrown down. Two parts of the whey are then mixed with one part of cream and then 1½ per cent. of equal parts of milk and cane-sugar are added. This mixture is then pasteurized in bottles. The virtues of this preparation are supposed to be in the removal of the superfluous casein without the addition of any foreign agent, the CO_2 producing no change in the milk, and being itself easily removed. Twenty-two cases of feeding by means of this form of milk were carefully studied by J. Grosz (*Arch. f. Kinderheilk.*, Vol. 41, Nos. 1 and 2). All were the children of poor parents, and all but five were unhealthy, suffering mostly from the digestive disorders that accompany hot weather. These troubles disappeared with the use of diluted Székely's milk, and an increase of weight was observed. The use of this milk does not encourage the development of rickets. A great advantage of this preparation is that on account of its small content in casein it is more easily digested than other preparations. Another advantage is that the albumin and sugar are present in their unchanged state, and that in consequence of the bactericidal effect of carbonic acid, sterilization is unnecessary. The conclusion is drawn that Székely milk is one of the best substitutes for woman's milk in infant feeding.

Contributions to the Symptomatology of Barlow's Disease.—The infantile scurvy is frequently overlooked, has been emphasized frequently during the past few years. The variety of manifestations which this disease may assume, accounts for this difficulty of diagnosis. A case which presents features which have been reported in no other of the 866 cases recorded in the literature, has been observed by S. Weisz (*Arch. f. Kinderheilk.*, Vol. 41, Nos. 1 and 2). It was that of a 4½ months old child that presented a swelling of the right cheek, the size of an orange, painless, red, and yielding on aspiration a completely fluid and sterile blood. The swelling was a subperiosteal hematoma of the upper jaw. There was also a hemorrhage beneath the right lower eyelid, and there occurred hemorrhages beneath the skin in different parts of the body and beneath the mucous membrane of the mouth. The child was breast-fed, and received, therapeutically expressed, orange and lemon juice. The swelling on the cheek reminded one of a cephalhematoma of the new-born. The typical bleedings of Barlow's disease occur beneath the periosteum of the alveolar processes of the jaws. The reason for this localization is that here, owing to the cutting of the teeth, the periosteum is in a condition of greater activity. In spite of the fact that the infant refused to take the orange juice and received only breast-milk, the case spontaneously recovered. That spontaneous recovery in infantile scurvy may occur, is admitted by Barlow. That the cranial bones may exhibit subperiosteal hemorrhages in this disease is not a too uncommon occurrence. The difficulty in these cases is in the differential diagnosis, from noma, angioma, osteosarcoma, hemorrhagic osteomyelitis, sepsis, leucemia, and the various hemorrhagic diatheses. The best preventive against the disease in mother's milk.

Sudden Death During Pneumonia in Infants.—The two cases reported by E. Terrien (*Rev. Mens. des Mal. de l'Enf.*, April, 1905), remind one to be on guard against sudden death during this disease. In one case it occurred during the course of the disease, and in the other during convalescence. In one case there was a latent suppurative pericarditis, and in the other an acute and rapid dilatation of the myocardium. In both cases the fat at termination was announced by a cyanosis. The author draws the following conclusions: Extrapulmonary complications of pneumonia are quite frequent, particularly before the second year; among them, pericarditis is particularly redoubtable; most frequently it is latent and frequently it causes sudden death. Sudden death may occur at all ages with or without extrapulmonary complications, although, to be sure, it is not a frequent accident. This possibility allies infantile pneumonia to diphtheria and typhoid fever in this respect. Cyanosis is frequently the first sign of an impending death, the result either of a pericarditis or an acute dilatation of the heart.

PRESCRIPTION HINTS.

The Treatment of Rhinitis.—A number of methods of medicinal applications to the nasal cavities in rhinitis are indicated in an article by M. Malherbe (*La Méd. Infantile*, March, 1905). The following are instillations: In the new-born, introduce by means of a syringe or a small spoon, a few drops of the following mixture:

℞ Menthol 0.30
Ol. oliv. ster. 40.00

or

℞ Menthol ....
Resorcin .... } .....aa. 0.30
Ol. oliv. ster. 40.00

In older children one may use inhalations of sulphuretted water, or emollient fumigations, or employ the following ointment:

℞ Menthol ...
Salol..... } .....aa. 0.50
Cocainæ hydrochlor. 0.30
Lanolin .....
Vaselin ..... } .....aa. 15.00

With an atomizer use the following pulverization:

℞ Sodæ bicarb. .....
Sodæ biborat. ..... } .....aa. 0.50
Aquæ destil. 30.00

In the smaller infants avoid solutions containing carbolic acid.

Bathe nose either with boric acid solution or with the following:

℞ Acid thymic. 4.00
Alcohol 100.00
Aq. dest. 900.00

or

℞ Aniodol 0.50
Aquæ .....1 liter

Sulphur in Nasal Catarrh.—L. Kolipinski (*Am. Med., May* 13, 1905) recommends the use of sulphur as an instillation powder in the treatment of the putrid discharges of nasal catarrh. The powdered sulphur is also useful in the treatment of tuberculous conditions of the nasal passages.

The Medical News.

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SATURDAY, JUNE 3, 1905.

THE EMMET DINNER.

The testimonial dinner tendered to Dr. Thomas Addis Emmet, of New York City, on his seventy-seventh birthday, on Monday, May 29, an account of which appears in another column of this week's Medical News, was a worthy tribute to a man who has merited well of two generations of American physicians. Dr. Emmet was one of those who first carried the fame of American surgery and especially of gynecology into European climes, and few men have ever been so widely known in the medical world or so favorably appreciated. His was not the work of a great genius, but of a supreme practical talent. His attention to the slightest details was the secret of his remarkable success as an operator, even in the most difficult cases, and even our modern advances in gynecology have not rendered his methods obsolete. More than any other he realized the truth of the maxim: "trifles make perfection, yet perfection is no trifle."

To Dr. Emmet we owe, here in America, the first effective clinical teaching. At the Woman's Hospital he began und carried to perfection that genuine bedside training of pupils which constituted the corner-stone of what is best and most progressive in our modern medical education. The success of his methods may be best appreciated from the fact that pupils of his are in control of many of the most important gynecological clinics in the United States. More than any formal system of teaching there was the magnetic personality of the man lifting his students up to that higher plane, where they viewed things from the standpoint of their own observation and not through the prejudices of preconceived notions or pet theories. For this the medical profession of America owes Dr. Emmet a debt that will never be adequately paid. It is in this that his highest and best influence was and will be for at least another generation surely felt.

But it must not be thought for a moment that Emmet was lacking in originality. Long before the days of scientific asepsis, with its groundwork in the knowledge of bacteriology, Emmet insisted on a cleanliness of patient and physician that was a definite anticipation of what is most valuable in the modern methods. In the treatment of chronic pelvic inflammation Emmet occupied the conservative standpoint thirty years ago to which gynecologists have in recent years returned again after having tried the effect of operations of many kinds. After a period of partial eclipse Emmet's work is once more coming to be the illuminating principle of many procedures in gynecology.

Dr. Emmet said at the conclusion of the banquet on Monday evening that every professional man should have a hobby and get all the fun possible out of it. His own hobby just now is the Gaelic or Irish language, which he began to learn at the age of seventy-five years—a record recalling Cato's application to Greek at eighty. Neither the guest of honor of the evening himself, nor any of those who made addresses said anything of another hobby of Dr. Emmet's which has proved and will prove for many generations a valuable aid to the study of American history. We refer, of course, to the Emmet Collection of historical documents and printed books dealing with American history, which may be found in the Lenox Library of New York City. It may be said that if he had not made the collection some one else would, but then the world's work always gets itself done somehow, yet we cannot but feel grateful to the doers when the work has been of exceptional character. This collection of Americana will preserve the name of Emmet for all time in the annals of

American bibliography and it stands as a magnificent example of how useful a hobby may be made to others, while furnishing a maximum of pleasure and diverting interest to its rider.

May Dr. Emmet long be with us as a reminder of how much a sincere, simple-hearted physician —a sympathetic teacher and a cultured gentleman, can accomplish in a world that is not over pleasant at best, yet may be a poignant blank at its worst and can be changed to something not so far from the heart's desire by the unselfish efforts of the princes among men.

NEUTROPHILIC NUCLEOMORPHISM.

The variable form of the nucleus of the neutrophilic elements of the blood has long attracted the attention of observers, and the question, no doubt, has frequently been asked whether the degree of polymorphism might not be of some definite clinical significance.

But until recently no one, apparently, had investigated this matter in a more than cursory manner. The undertaking was manifestly quite a laborious one, and on first consideration did not suggest itself as a rewarding topic for investigation.

Mononucleism of the neutrophilic elements, it was well known, was a sign of youthfulness on the part of the cell, polymorphonucleism evidence of maturity, and a breaking up of the nucleus into many lobes suggestive of decay. It did not seem likely that a further study of the problem would bring results of material importance.

But notwithstanding such an unpromising vista, a German investigator, Arneth, has recently entered deeply and systematically into the subject, and apparently has obtained results which may prove of distinct value to the clinician. As a result of his preliminary studies in normal individuals, it was ascertained that the various neutrophilic cells can be divided into five large groups, according to the number of the nuclear lobes, and that the cells in which the nucleus is multilobed can be subdivided into cells with round or oval lobes, into cells with loops, into cells with loops and lobes, with further divisions as to the number of loops and lobes in each cell, etc. The first class he terms the myelocyte class, and he here recognizes three divisions, viz., myelocytes proper, *i.e.*, neutrophilic cells with single, round, or oval nuclei; then myelocytes with slightly indented nuclei, and, thirdly, cells with deeply indented nuclei. These latter, of course, are not myelocytes in the true sense of the term, but in so far as they are mononuclear, *i.e.*, the nucleus not broken up into separate lobes or loops, the division is a proper one.

Arneth's technic is simple. Blood smears are prepared and stained as usual, when a hundred neutrophilic leucocytes are differentiated, according to the plan just outlined, and the percentages of the different forms ascertained. Under normal conditions he finds that the percentage numbers are fairly constant and increase from the first to the third class and then diminish in a closely corresponding way to the fifth class; the actual average figures are 5-20-48-23-5.

Under pathological conditions the values may undergo very material alterations, the general tendency being a shift toward the left, *i.e.*, toward the mono- and binuclear forms. It is especially interesting to note that such changes are in no way influenced by the total number of the leucocytes, and accordingly Arneth distinguishes between five distinct possibilities, which he designates by the terms iso- and aniso- normocytosis, hypocytosis and hypercytosis, the terms iso- and aniso- having reference to normal and abnormal relations, respectively, of the different types of neutrophilic cells, and the normo- hypo- and hypercytosis to a normal, subnormal and increased number of the leucocytes as a whole.

It is, of course, impossible to enter into a detailed account of Arneth's clinical observations at this place, and possibly the data obtained are not yet sufficiently numerous to warrant any far-going and dogmatic conclusions, but it may not be out of place to briefly refer to a few of the results which seem especially striking. Particularly noteworthy appear those results which were obtained in cases where the total number of the leucocytes was diminished. Most marked abnormalities were here encountered. Distinct anisohypocytosis was thus found to exist in severe, fatally ending cases of pneumonia. It was constant in typhoid fever and measles, common in varicella and mumps, and further observed in septic diphtheria, miliary tuberculosis, in cases of septicemia, in which the existence of bacteriemia could be assumed, further, in articular rheumatism, fulminating appendicitis, in variola in the initial and the eruptive stage, etc. Arneth inclines to the belief that the common factor in these various conditions is to be seen in the circulation of the infective organisms in the

blood, while hyperleucocytosis results if toxins only are present. The shift toward the left he refers to the destruction of the maturer forms by bacteria. With the occurrence of convalescence a marked swing to the right is often observed, which may be followed by a counter-swing to the left and further oscillations, until the normal is again established. In certain diseases, such as measles, it would appear that the blood picture furnishes more reliable data in reference to the time when recovery may be regarded as established, than clinical observation.

Carcinoma *per se* does not lead to a deviation from the normal leucocytic values, nor does it cause any shift in the percentage figures of the neutrophiles. With the occurrence of complications, however, which sooner or later appear, as a necessary consequence, distinct changes occur, which, generally speaking, are of the character of an anisohyperleucocytosis, although anisonormocytosis may also occur. Whether or not the occurrence of metastases alone is sufficient to bring about such radical changes Arneth has not yet established with certainty, but, to judge from the available data, it appears not unlikely.

These, in short, are a few of the results which Arneth records in his elaborate publications, but they are probably sufficient to show that these relations also should in future be considered by workers in the clinical laboratory.

TYPHOID IN TWO CITIES.

THE bulletin of the Health Department of Chicago for the week ending May 20, begins with the announcement "One solitary death from typhoid fever in a population of nearly two millions is the notable feature of Chicago's health during the week of May 20, 1905." This is, of course, something to be deservedly proud of, and the Commissioner of Health may well boast of the department's record.

Whether it will ever be true that typhoid fever will grow, as he suggests, to be a negligible quantity in Chicago mortality, remains to be seen. It is something to rejoice over, however, even in anticipation that the additional suggestion that the diagnosis of this disease by the examination of the blood of suspected cases promises to become a lost art, owing to lack of material, may become an actual reality. Dr. Reynolds does not hesitate to add that when the Drainage Channel is complete in all its adjuncts, intercepting sewers in the Evanston and Calumet subsidiary districts, and full flow of 600,000 cubic feet per minute, only an occasional imported case of typhoid, or a still rarer one from milk, oysters or other infected food, will be left for study by the medical profession of Chicago.

To this we can only say with heartfelt sincerity, may all the hopes and anticipations of the Commissioner be fulfilled. His work has been of a character to deserve such a splendid result as this, and our earnest wish is that he shall be given every opportunity to continue to improve Chicago's health in the future, as he has succeeded in ameliorating it in the past. Chicago, from being one of the horrible examples in the matter of sanitation, has become an exemplar to the world of how much can be done in lessening the death-rate from infectious disease by means of proper regulation and the enforcement of ordinary municipal laws, even under not too favorable municipal conditions.

We cannot help, however, contrasting the present state of Chicago's health with regard to typhoid fever, with that of another of our large American cities, Philadelphia. According to the health reports, there were during the first two weeks of May in Philadelphia, 256 and 155 new cases of typhoid, respectively. The deaths from this disease have averaged nearly twenty for all the weeks of the present year. This has been the state of affairs in a population not much more than one-half as large as that of Chicago.

Typhoid fever is an eminently preventable disease. As has been said over and over again in recent years, when a patient dies of typhoid fever, somebody ought to be hung, yet the typhoid situation in Philadelphia has remained unchanged for years.

The experience in Chicago in the reduction in mortality from the disease is by no means unique. Most of the large cities of Europe were hotbeds of typhoid fever half a century ago. Vienna and Munich had a large death-rate from the disease. Each of these cities introduced pure water and saw their typhoid mortality practically disappear. As a matter of fact, the disease is so rare in many medical centers in Germany that it has become a distinct medical curiosity, and whenever a case occurs, students and physicians are especially invited and are given particular opportunities for its study.

It is well understood that the reason why nearly ten thousand young persons suffer from typhoid fever in Philadelphia every year and why nearly a thousand of them give up their

lives, is that the citizens of the City of Brotherly Love are so little prone to dispute with politicians that they accept supinely the fate that is meted out to them. Philadelphia should have had, only for political machinations, a water supply that would have eradicated the mortality and morbidity from typhoid fever some fifteen years ago. We are glad to understand from the public press that at last, apparently, the man and the occasion for the political freedom of Philadelphia has come. It seems almost too bad that it should eventually have been merely a money matter that aroused the feelings of Philadelphians, seeing that they have so disgracefully permitted their young adult population to be sacrificed during so many years. No matter how the freedom may come, however, if it will only give Philadelphia a city government that will properly insure the health of its citizens, it will be sincerely welcome. There has never been, let us hope there never will be, a worse blot on the fair fame of our American civilization than the awful death-rate from a preventable disease in that city of our country in which the native population is the largest, and in which more citizens own their own homes than in any other.

We sincerely hope that the medical profession of the fair city by the Schuylkill will be found as a unit in the ranks of those who are laboring for the institution of government by the people in Philadelphia once more. Even the present long-promised, long-undertaken, long-delayed and almost hopelessly mismanaged filtration plant will not accomplish all that is expected of it if left to the tender mercies of the present political bosses. Now or never must be the watchword for municipal health, and if this opportunity is lost, Philadelphia's future, at least as regards the eradication of typhoid fever, looks blank enough.

ECHOES AND NEWS.

NEW YORK.

Appointment to the Post-Graduate Medical School.—Dr. Samuel W. Bandler has just been appointed Adjunct-Professor of Gynecology in the Post-Graduate Medical School.

Hospital Vacancies.—There are at present three vacancies in the Out-Patient Department of Bellevue Hospital, two in the Genito-Urinary Clinic, those of first and second assistants to the surgeon in charge, and one in the General Surgery clinic as second assistant to that class. Appointments to these vacancies will shortly be made by the Board of Trustees of Bellevue and Allied Hospitals and the Board will be glad to consider the names of all desiring to present themselves as applicants for the positions.

Present Low Death-Rate.—If present favorable conditions can be maintained, it is probable, according to the Board of Health officials, that the death-rate for the present year will beat that of 1903, when it was kept down to 18.18 per thousand population. The death-rate for last week was 17.11, while for the corresponding week of last year it was 20.62. The deaths due to spinal meningitis last week were 60, the lowest since the beginning of March, this year. The deaths from the same disease for the corresponding week of last year were eight.

Brooklyn Dispensary Delayed.—The New York Department of Health was to have opened, the past month, another special clinic and dispensary for the treatment of tuberculosis, at 75 Henry Street, Brooklyn, where it was planned to follow the system for over a year in successful operation in Manhattan. The ill-advised opposition of residents of the Heights district and of one or two physicians has delayed the matter, and action by the courts will be necessary before it can be opened, as one physician has actually instituted legal proceedings. No such dispensary exists at present in Brooklyn, and the need of it is pressing. Close cooperation had been planned between the clinic and the newly organized Committee for the Prevention of Tuberculosis of the Brooklyn Bureau of Charities, and this general program had been outlined: "Early recognition of pulmonary consumption; the careful supervision of persons receiving treatment, including the supply of milk and proper food to indigent cases; the furnishing of circulars of instruction in many languages and of paper sputum cups and handkerchiefs; the continued observation at their homes of indigent, needy, and ambulatory cases—a staff of specially trained nurses to visit the patients in their homes; the removal of cases requiring such care to hospitals or sanatoriums, and the extension and strengthening of the sanitary control of consumption among the poor."

Harvey Society.—A new society called the Harvey Society, consiting of laboratory workers in New York City, has recently been established under the patronage of the New York Academy of Medicine. Its purpose is the diffusion of scientific knowledge in selected chapters of anatomy, physiology, bacteriology, pathology, pharmacology and physiological and pathological chemistry, by the means of public lectures by men who are workers in the subjects presented. Each lecture is intended to represent the state of modern knowledge concerning the topic treated and at the same time will be adapted for presentation before an audience consisting of that portion of the general medical profession who are interested in the scientific side of medicine. It is hoped that through these lectures the common interests of research workers and the medical profession may be profitably cultivated. The fulfillment of the purposes of the society has been entrusted to the hands of the following committee: Graham Lusk, President; Simon Flexner, Vice-President; George B. Wallace, Secretary; Frederic S. Lee, Treasurer; Christian A. Herter, S. J. Meltzer, E. K. Dunham. The members of the society consist of two classes, active and associate members. Active members are laboratory workers in the medical sciences residing in New York. Associate members are such persons as may be in sympathy with the objects of the society and reside in New York. The

first course of lectures will be given on Saturday evenings during the winter of the years 1905-1906, at the Academy of Medicine.

An American Tuberculosis Exhibition.—Definite announcement has been made of the "First American Tuberculosis Exhibition," to be held in New York City in November. The National Association for the Study and Prevention of Tuberculosis and the Committee on the Prevention of Tuberculosis of the New York Charity Organization Society have had the matter under consideration for some time. The decision has been reached that in view of the widespread interest, of the large number of anti-tuberculosis associations forming in all parts of the country, and of the increasing desire to provide better conditions for consumptives in many cities and States, it is time to gather together an exhibition which will show just what has been accomplished in this country and abroad in fighting the Great White Plague, and from which results can be expected comparable to the influence upon public opinion of the Tenement-house Exhibition in 1900. The exhibition will be so arranged that it will present through diagrams, photographs and models, a picture of the progress being made in fighting tuberculosis at the same time that it will show the need for much greater effort to bring the disease within the limits recognized as possible. A feature will be the lectures to be delivered, some of a technical nature, but many of a popular sort. The success of the Baltimore Tuberculosis Exhibit, and of a similar undertaking in Boston, give promise of what may be anticipated of one national in scope.

The Examination of 2,500 Atypical Children.—During the past two years Dr. Elias G. Brown, who has charge of the work for atypical children in the New York City public schools, has examined more than twenty-five hundred children. The data obtained has been tabulated on cards and the physician has followed up the development of each case under instruction. Dr. Brown states that many of the children sent to him have returned to the grades; that about one-fourth required simply special coaching; that less than one-twentieth were found to need disciplinary training, and less than one per cent. were recommended for transfer to institutions. The most significant fact to his mind revealed by this examination was that about twenty-seven per cent. of the children examined were found to require treatment in special "training" classes for what he designates as "major cases." These major cases, to whom appeal must be made through the senses and by physical activities, are the only ones who should be trained by special methods, according to Dr. Brown. The minor cases, "functional defectives," slow and backward children, he thinks, should follow as nearly as possible the regular methods but at a slower pace. The unruly, he believes, require a sympathetic, strong, self-controlled teacher, capable of setting a rapid pace without noise, and able to inspire her charges to activities along right lines. Manual and physical training are important also in these disciplinary classes.

An important feature of the work is the fact that often the careful examination of a child enables the school authorities or the parents to correct comparatively temporary conditions which are holding the child back, thereby enabling him to continue with his grade. Dr. Brown says: "There is a certain number of children who are not able to keep up with the work of the grades. These atypical children when in the regular grades (being unable to do the work) lack normal competition, become discouraged, lose interest, cease to try, and degenerate still further in many instances. The class teacher is hindered in her work. The children of the class are to some extent held back—the atypical child acting as a drag.

"The solution of this problem lies in teaching the atypical children in special classes. It would be a comparatively simple matter if one form of special class would suffice. It is necessary to make the working plan as simple as possible for the sake of economy in school management; on the other hand, economy should not be forced to such an extent that the child and the community suffer. Some of these unfortunate children (the major defectives) can be taught but little through the intellect. Special training is necessary. For these the 'training class' is formed. Others of the atypical children can be taught in the ordinary way (directly through the intellect), provided they receive individual attention. For these the 'coaching class' is formed. The disciplinary cases should be in a class by themselves." There are now twenty special classes in the city, and the effect has proved to be, first, to enable some atypical children to advance (whereas formerly they stood still or retrograded), and second to allow the normal children (freed from the drag of the dull child) to do better work.

Manhattan Dermatological Society.—Regular monthly meeting, held at the residence of Dr. Ludwig Weiss, on Friday evening, May 5, 1905, Dr. E. L. Cocks presiding. The following cases were presented:

Tertiary Ulcer (roof of mouth), presented by Dr. L. Weiss. Young man contracted syphilis nine years ago and underwent a thorough course of antisyphilitic treatment, including 180 injections, inunctions, and K.I. and Hg. internally, extending over a period of four years. In the past four years no treatment. Present trouble began about two months ago, with erosion on roof of mouth, and developed into a large excavated ulcer; the nasal septum shows a perforation, and the right nasal bone periostitic. Dr. Weiss spoke on the uncertainty of prognosis, as far as the development of tertiary lesions was concerned, even after so thorough and complete a course of antisyphilitic treatment, and one was never sure how soon a patient would present himself with tertiary lesions, in spite of early and vigorous treatment. Dr. Weiss also discussed the advantages and disadvantages of the various methods of treatment, and likewise stated that this case might do better under the old-fashioned method of treatment, viz., hot baths, sweating, and hot decoctions of Zittmann's solution. Dr. Gottheil said a certain proportion of cases will develop tertiary symptoms, in spite of careful treatment, but the number was small. He would push the mercury. Speaking on the injection method, he prefers the insoluble salts of Hg. and uses by preference the salicylate suspended in sterile oil. Dr. Geyser favored injection of bichloride; a certain number of cases would develop nodules and others not; he was unable to explain why, under similar conditions, one set of patients would develop induration at the site of injections and others escape. Dr. Sobel thought indurations may be due to faulty technic; this case exemplifies that one can never be sure tertiary lesions will not break out. He ventured to remark that a syphilitic should take a course of treatment for one month, each year of his life. Dr. Pisko used bichloride injections for the past twelve years, with no unfavorable results; injections should be made in the gluteal regions only.

Dr. Bleiman likewise favored bichloride injections, having used that method for the past three years; patients sometimes complain of a tingling sensation, which soon passes off. Dr. Cocks uses a platinum needle, stating it was easy to keep clean and did not corrode; saw occasional induration, but no pronounced cellulitis.

Dr. W. S. Gottheil presented two cases of lupus vulgaris (nasal region). Case I of six years' duration and since nine weeks under Finsen therapy, showing excellent results; the nodules have disappeared and slight tanning of skin is observed. Case II likewise same treatment, but result not so encouraging; some nodules still present; previously for three months under X-ray with little or no improvement. Dr. Pisko spoke on the unfavorable action of trichloracetic acid; he explained the technic and said extreme caution was necessary, as the reaction was very severe. Dr. Weiss said the cautery action of the acid could likewise be produced by application of the high frequency currents; according to its application one could produce hyperemia to eschar.

Dr. J. P. Oberndorfer presented a female, twenty-six years old; eight years ago had an attack of typhoid, following which noticed marked seborrhea of the scalp. About one year ago noticed a small pimple on nose which assumed dimensions, followed by development of other lesions of lentil size on adjacent cheeks; about five months ago similar lesions on scalp; flat, bluish papules, resembling frost bite in appearance, are seen on fingers. Scalp likewise shows pediculi, considerable seborrhea, small nodules back of the ear, and some atrophic spots; the face shows reddish plaques, scaly patches and atrophic spots. Dr. Oberndorfer termed the condition lupus pernio. Dr. Pisko said the high frequency current was indicated in this case; it would be less disfiguring than application of trichloracetic acid. Dr. Gottheil claimed equally good results might be attained with sulphur and resorcin ointment. Dr. Allen said some cases of lupus pernio tend to show relapses in cold weather. Dr. Weiss believed the condition to be longer than five months' duration. Dr. Geyser likewise expressed surprise at the rapid progress of the disease in so short a time.

Dr. E. L. Cocks presented a young man showing a small ulcer on lower lip; it began as a herpes four weeks ago; cleared up, leaving this small area of ulceration; submaxillary and sublingual glands of affected side painful and slightly enlarged. Dr. Cocks thinks it a chancre; he thought he was justified in his opinion, since this young man's mistress is a subject of syphilis and at present under treatment for mucous patches of the mouth. The consensus of opinion seemed to regard the condition as one of simple ulcer.

Dr. A. Bleiman presented a case for diagnosis. Male, forty-five years old, working in a slaughter house; stated eruption began seven months ago as scaly blotches on body and limbs, face and scalp; the entire skin became involved and the palms and soles calloused and fissured; recovery took place in eight weeks, but the skin always showed slight scaling; a second attack broke out three weeks ago; within ten days the entire body showed marked scaling; the palms and soles again became calloused and peeled off in large pieces, the skin on body and limbs showing only light desquamation. Dr. C. W. Allen stated the case was seen by him a day or so ago and to him it appeared as if the original eruption was one of pityriasis rosea; the condition of the palms and soles was remarkable, but he had already observed such cases and stated that he saw a case of pityriasis rosea, showing vesicopustular lesions on the palms. Dr. Weiss recognized some resemblance to pityriasis rosea; some of the classical signs were present, others wanting. Lichen planus rubra was also thought of. Dr. Oberndorfer said it resembled pityriasis rubra; pityriasis rosea he would not entertain at all. Dr. Sobel stated it resembled a condition described under dermatitis exfoliativa recurrens. Drs. Kinch, Pisko and Cocks called it dermatitis exfoliativa. Dr. Gottheil never saw a case of pityriasis rosea showing such involvement of the palms and soles; a considerable amount of dermatitis with seborrhea was present; he termed it seborrheic dermatitis. Dr. Bleiman stated he understood dermatitis exfoliativa to be a general disease and one not limited to exfoliation of the soles and palms alone; the suggestion of Dr. Allen was well taken; the remarkable condition of the soles and palms was hard to explain, except, perhaps, as a result of the man's occupation, and he therefore looked upon the entire process as a general eczematous condition.

Dr. B. F. Ochs showed an adult male with lesions on nose and cheeks; of two years' duration, and began as small papules with redness and seborrhea; regarded as a case of rosacea.

Dr. C. A. Kinch presented a colored man with lesions on lower left thigh and upper leg. Patient states, three years ago he fell and injured left knee; following injury an abscess developed and discharged; then marked lividity and swelling, with breaking out of several indolent ulcers; other ulcers appeared above and below the knee; these are now fully healed and cicatrized. Dr. Kinch thinks the process was a tuberculosis. In this opinion the members dissented and concurred in calling it lues.

Dr. W. S. Gottheil then presented his case of folliculitis capitis (shown at April meeting); apparently every hair follicle was invaded; such extensive involvement he rarely saw. Dr. Geyser said the high frequency current was indicated in this case.

Dr. J. P. Oberndorfer showed an adult with typical lesions of lichen planus confined to glans penis only; other parts of body and mucous membranes clear. Dr. Allen said he observed lichen planus in this and other regions with development of vesicles and bullæ; the latter were extremely rare. Dr. Weiss believed lichen planus to be characterized by a flat papule, which never underwent changes, but was a papule from the very beginning and so remained until involution set in. He never saw the types mentioned by Dr. Allen.

Dr. L. Weiss presented a case for diagnosis; a young man had an outbreak of irregular-shaped and sized blotches on upper and lower limbs about three months ago; slightly itchy; these blotches are still visible, some older lesions being pigmented; new lesions consist of a circular indurated efflorescence about size of a penny; the skin is harsh, dry, scaly; the scalp is dry and scaly. A single patch on abdomen resembles a patch of seborrheic eczema. Other parts of body free, except the outer thighs, which show typical keratosis follicularis. Dr. Gottheil believes the condition originally was an erythematous eruption; some of the newer lesions look like erythema multiforme. Dr. Oberndorfer thought of eczema seborrhoicum; lesions on knee resemble psoriasis; considers it an atypical form of psoriasis with marked seborrhea. Dr. Sobel called it eczema seborrhoicum psoriasis formis. Dr. Kinch saw no lesions of psoriasis; called it eszema seborrhoicum. Dr. Pisko said psoriasis and seborrhea were both present, but not as a typical variety. Dr. Allen said there was little difference between some types of psoriasis and eczema seborrhois. Dr. Ochs favored diagnosis of psoriasis. Dr. Bleiman believes there are two conditions to deal with, an erythema multiformis and a mild

form of ichthyosis, the latter obscuring and modifying the former; having the case under observation for three weeks, the ichthyosis in the beginning was a marked feature of the disease; a psoriasis or eczema seborrhæcum of three months' duration would not limit itself to the limbs alone and spare the trunk. Dr. Weiss, in closing, said the patient presented most of the signs and symptoms of a seborrheic condition. In new lesions of psoriasis the eruption was small, not large, as in this case; although not willing to make a definite diagnosis, yet he inclines to that of eczema seborrhoicum.

PHILADELPHIA.

Mines' Death List.—According to the report of Chief Roderick, of the Department of State Mines, the total number of fatal accidents during the year 1904 was 595, and the number of non-fatal was 1,047. The whole number of men employed was 161,330, and the number of tons of coal mined 65,700,258.

Qualified as Nurses.—At the annual commencement exercises of the Nurses' Training School of the Women's Hospital, nineteen nurses received certificates which qualify them to practice their profession. The diplomas were presented by Mrs. Margaret P. Saunders, president of the Training School, in the clinic amphitheater. One of the graduates is from Ireland, one from Ohio, one from Florida, one from Delaware, three are from Canada and the remainder are from Pennsylvania. The Training School connected with the West Chester Hospital graduated four nurses. The exercises were held in the chapel of the West Chester Normal School, May 26, 1905.

Hospital Buildings Opened.—By the aid of philanthropists the Methodist Episcopal Hospital has been able to add four new structures to its already existing buildings. The buildings dedicated last week consisted of the nurses' home, erected at a cost of $40,000 by Mr. T. Comly Hunter in memory of his mother; of the Mary Burton Dispensary; of a power house; of an ambulance stable. The cost of the four buildings was $121,000. The dedication address was delivered by Bishop C. D. Foss. The other speakers were the Rev. E. E. Buriss, the Rev. Dr. S. Thomas, the Rev. Dr. C. W. Bickley, the Rev. Dr. S. M. Vernon, vice-president of the Board of Trustees, the Rev. Dr. J. A. Lippincott, the Rev. Dr. J. S. Hughes, and H. W. Castor, the architect.

Philadelphia Pathological Society.—At the meeting of this society which was held May 25, 1905, Dr. J. M. Anders and Dr. A. C. Callahan read a paper "On a Case of Bilharzia Hematobium." They exhibited slides showing ova of the parasite. Dr. John Funke read a paper on "Thrombosis of the Superior Mesenteric Artery with Resulting Hemorrhagic Infarction, Perforation and Peritonitis." Dr. Riesmann discussed it. Dr. Allen J. Smith then read a paper on "Hypertrophy of the Thyroid in a Case of Hypotonia." The discusion was opened by Dr. Spiller. The next paper was read by Drs. J. F. Schamberg and R. Hirschler, on an "Epithelioma of the Forehead Having its Origin in a Papillary Nevus." This paper was discussed by Dr. Hartezell and Dr. Loeb. Dr. H. S. Wieder read a paper on "Intrahepatic Gallbladder."

Registrar of State Vital Statistics Appointed.—The bill which was signed by the Governor May 1, creating the bureau of Vital Statistics, was put in force by the election of Dr. Wilmer R. Batt, as Registrar. The doctor has been connected with the State Quarantine Service for several years, and he has been active in the movements destined to safeguard the public health and to suppress epidemics.

Eclectic's Medical Officers Chosen.—At the annual meeting of the Pennsylvania Eclectic Medical Association, held in Harrisburg, May 26, 1905, the following officers were chosen: President, Dr. C. S. Johnson Baugh, Bethlehem; First Vice-President, Dr. A. F. Dunsmore, Barnesboro; Second Vice-President, Dr. W. R. Campbell, East Smithfield; Recording Secretary Dr. Nanni M. Sloan, Latrobe; Corresponding Secretary, Dr. A. Kimmelrauch, Johnstown; Treasurer, Dr. W. H. Wolf, Pittsburg.

Physicians to Organize. The physicians of Delaware, Chester and Philadelphia counties met in the Hall of the College of Physicians May 26, 1905, and listened to an address delivered by Dr. J. N. McCormack, of Kentucky. He is chairman of the Committee on Organization of the American Medical Association. During the evening he asserted that things have come to such a pass in the medical profession that there is a class of ill-supported and hence ill-informed and ignorant physicians whose antiquated methods do their communities and the profession at large more harm than good. It is all due to the fact that the physicians do not get paid for their services. Then, too, he is inclined to think that physicians work harder than any other class of people, and that there should be an up-to-date organization all over the country to lift up to the light struggling physicians who do not make enough to supply their families much less to supply the physicians with the necessary standard literature. In Kentucky, he said, an organization has been effected to make a uniform fee schedule.

Medical Students Become Physicians.—At noon, May 24, 1905, the senior students of the Hahnemann Medical College and their friends gathered at the Academy of Music to participate in the fifty-seventh annual commencement of that institution. They listened to an address delivered by Bishop Foss, who warned them of the dangers of political corruption in municipalities. The degrees were conferred upon the forty-four men by Judge William B. Hanna. The Alumni banquet was given at the Bellevue-Stratford, at which Dr. L. P. Posey presided. Henry F. Walton, president of the Board of Trustees of the Medico-Chirurgical College, conferred the degrees of Doctors of Medicine upon eighty-five students of that institution on May 27, 1905. The doctorate oration was delivered by Judge William N. Ashman. At the banquet of the Alumni Association of the Medico-Chirurgical College, which was held during the evening of May 26, 1905, District Attorney Bell spoke of the relation of law and medicine, especially in regard to the medical witness. On June 2, at the eightieth annual commencement of the Jefferson Medical College, 109 men received diplomas. The degrees were conferred upon the graduates by the Hon. William Potter, president of the Board of Trustees of the College. The students and alumni presented to Prof. Forbes his portrait, and Prof. Piersol, Professor of Anatomy at the University of Pennsylvania, presented him with a loving cup. The banquet of the Alumni of the Jefferson Medical College was held June 1, 1905.

Hospital Notes.—To honor them for the services rendered the Board of Officers of the Jewish Hospital Association have placed the portraits of Judge Sulzberger and Mr. August Loeb in the meeting room of the board. The Judge has served in one

capacity or another of the Jewish Hospital for forty years, while Mr. Loeb has served as treasurer for twenty-five years. At the fortieth annual meeting of the association the following officers were elected: President, William B. Hackenburg; First Vice-President, Mayer Sulzberger; Second Vice-President, Isadore Sangsdorf; Third Vice-President, Benjamin Wolf; Treasurer, August B. Loeb; Secretary, Henry N. Wessel; Corresponding Secretary, Arthur A. Fleisher; Directors for three years, Samuel D. Lit, Morris Rosenbaum, Gabriel Blum, Oscar D. Loeb, in place of A. M. Kohn, who becomes an honorary director; Directors for one year, Joseph N. Snellenburg, for unexpired term of Benjamin Wolf, elected third vice-president; Frank Kind, for unexpired term of August Wise, who becomes an honorary director; Directors for two years, for unexpired terms of Dr. L. W. Steinbach and Joseph L. Greenwald, who become honorary directors, Max Bamberger, Ben. Gimbel. The commencement exercises of the Nurses' Training School of the Jewish Hospital took place the next day, on which day donations were received by the hospital. The Federation of Jewish Charities, according to the will of Herman B. Blumenthal, receives a bequest of $2,000.

At the annual meeting of the Board of Directors of the Jewish Maternity Association, the following officers were elected: Medical Director, Dr. Isaac Leopold; Consulting Obstetricians, Dr. Lucy N. Tappan, Dr. Joseph Price; Consulting Surgeons, Dr. Lewis W. Steinbach, Dr. Charles P. Noble; Consulting Ophthalmologist, Dr. Isaac Leopold; Consulting Neurologist, Dr. Francis X. Dercum; Consulting Pathologist, Dr. David Riesman; Consulting Dermatologist, Dr. J. F. Schamberg; Consulting Pediatrician, Dr. Eleanor C. Jones; Obstetricians and Gynecologists, Dr. Clara T. Dercum, Dr. Daniel Longaker, Dr. Helen Kirshbaum, Dr. Edwin A. Heller, Dr. Ludwig Loeb, Dr. Leo H. Bernd; Pediatrician, Dr. I. Valentine Levi; Dispensary Physicians, Dr. Clara T. Dercum, Dr. Daniel Longaker, Dr. Helen Kirshbaum, Dr. Edwin A. Heller, Dr. Ludwig Loeb, Dr. Leo H. Bernd, Dr. Moses Behrend, Dr. I. Valentine Levi, Dr. Justin G. Schwerin, Dr. Ellis E. W. Given, Dr. D. A. Feldstein, Dr. Louis P. Steinhart; Resident Physician, Dr. Elizabeth F. Lewis; Head Nurse and Superintendent, Mrs. Blanche F. Schloss; Instructor in Massage and Swedish Movements to the Nurses' Training School, Mr. Louis D. Sinker.

American Neurological Association.—The thirty-first annual meeting of the American Neurological Association opened on June 1, at the College of Physicians. The following is the program of the meeting: Presidential Address, by Dr. William G. Spiller; "The Relation of Certain Persistent Emotional States to Insanity," by Dr. Theodore H. Kellogg; "A Fatal Case of Neurasthenia," by Dr. Theodore Diller; "Insanity in the Aged," by Dr. Charles W. Burr; "Psychasthenia, Its Clinical Entity, Illustrated by a Case," by Dr. Sidney I. Schwab; "A study of Pathological Gait," by Dr. Joseph Sailer; "Multiple Sclerosis; Four Cases, with Autopsy; Consideration of Differential Diagnosis," by Dr. Edward Wyllis Taylor; "The Relations of the Cerebral and Olfactory Regions of the Brain," by Dr. Burt G. Wilder; "Two Cases of Cervical Rib, with Operation," by Dr. Hugh T. Patrick; "A Contribution to the Acute Polioencephalitis Superior (Wernicke)," by Dr. J. Ramsay Hunt; "Disease of the Cerebral Venous System," by Dr. D. J. McCarthy; "A Study of Two Brain Tumors of Endothelial Origin—One a Multiple Cylindroma, One a Perithelioma," by Dr. Herman C. Gordinier and Dr. H. H. Carey; "The Results of Operations for the Removal of Cerebral Tumors," by Dr. Philip Coombs Knapp; "Brain Tumors: A Study of Clinical and Post-Mortem Records Bearing on Their Operability and Their Symptomatology," by Dr. George L. Walton and Dr. W. E. Paul; "Post-Operative Asthenia," by Dr. S. Weir Mitchell; "The Motor Area of the Human Cerebrum as Determined by Cortical Faradization, with a Discussion of the Surgery of the Motor Region," by Dr. Charles K. Mills and Dr. Charles H. Frazier; "Cerebellar Tumors, with Reference to Diagnosis and Surgical Treatment," by Dr. B. Sachs; "Sarcoma of the Cerebellum, with Unusual Symptomatology," by Dr. F. X. Dercum; "Concerning Operative Intervention for the Intracranial Hemorrhages of the New-Born," by Dr. Harvey Cushing; "The Progressive Spinal Atrophies—Study of the Etiology and Grouping of Fifty Cases, with Report of a Case with Autopsy," by Dr. Charles L. Dana; "Ascending Transverse Myelitis, with Osseous Anchylosis and Growth of the Vertebræ and Extreme Anterior Curvature," by Dr. Graeme M. Hammond; "On the Localization and the Mechanism of the Process of Reading," by Dr. William Hirsch; "The Mental Symptoms of Cerebral Tumor," by Dr. Philip Coombs Knapp; "Carcinoma of the Nervous System," by Dr. Wm. G. Spiller and Dr. T. H. Weisenburg; "Observation on the Temperature in Cerebral Hemorrhage and Cerebral Embolism," by Dr. William N. Bullard; "Palates of the Feeble-Minded," by Dr. Walter Channing and Dr. Clark Wissler; "Paraplegia from Fracture of the First, Second, and Third Dorsal Vertebræ," by Dr. Guy Hinsdale; "A Case of Brown-Séquard Paralysis, Due to a Fall Upon the Head; Operation; Autopsy," by Dr. Wm. C. Krauss; "A Case of Epilepsy, Associated with Graves' Disease and Total Alopecia," by Dr. Frank H. Hallock; "Hypæsthesia or Hypalgesia and Their Significance in Functional Nervous Disturbances," by Dr. Edward B. Angell; "Sarcoma of the Spinal Cord, with Dissociated Sensory Loss," by Dr. F. X. Dercum; "Hysterical Stigmata, Caused by Organic Brain Lesions," by Dr. Herm. H. Hoppe; "Case of Double Consciousness," by Dr. Richard Dewey; "Exhaustion Paralysis of Cortical Origin, Due to Arteriosclerosis," by Dr. D. J. McCarthy; "A Case of Internal Hydrocephalus, with Autopsy," by Dr. Theodore Diller; "The Chronic Progressive Softening of the Brain," by Dr. J. Ramsay Hunt; "Autopsy in a Case of Adiposis Dolorosa," by Dr. F. X. Dercum; "A Case of Cerebral Tumor Presenting Confusing Symptoms," by Dr. Frank R. Fry. A luncheon was given the association on Thursday at the University Club and the members were invited to a smoker at the Art Club in the evening. The Art Club also served luncheon on the following day, and the meeting closed Saturday.

CHICAGO.

One Typhoid Death in Chicago in Week.—Only one death from typhoid fever, in a population of nearly two millions, was the notable feature of Chicago's health during the week ended May 20.

Chicago Pediatric Society.—At the annual meeting, held May 23, 1905, the following officers were elected for the ensuing year: President, Dr. Samuel J. Walker, reelected; First Vice-President, Dr.

Frank S. Churchill; Secretary-Treasurer, Dr. Emma Moore; Trustee for three years, Dr. I. A. Abt, re-elected.

Pneumonia and Consumption.—Pneumonia is still struggling for leadership—70 deaths reported during the week as compared with 58 from consumption. There have, however, been 703 fewer pneumonia deaths this season than last, while there have been 97 more from consumption. The ratio of pneumonia deaths to deaths from all causes is 13 per cent. less and of consumption 17 per cent. higher than last season.

Dr. Murphy Joins Rush Faculty.—Dr. John B. Murphy has resigned his position as Professor of Surgery and Clinical Surgery at the Northwestern University Medical School, and has accepted the position of Professor of Surgery at Rush Medical College. The change, it is said, involves the severance of his connection with Mercy Hospital, as its surgeon-in-chief. The tender of the Professorship at Rush Medical College was made at the meeting of the trustees of the University of Chicago, held Friday, May 26.

Dinner Given by Faculty.—The Faculty of the University of Chicago gave a farewell dinner Saturday evening, May 27, to Prof. John F. Jameson and Dr. L. F. Barker, at the Auditorium Hotel. Prof. Wm. G. Hale presided. Toasts were responded to by Prof. Paul Shorey, Prof. Albion W. Small, Dr. Frank Billings, and Dr. Hugh T. Patrick. Dr. Barker, who was formerly head of the department of anatomy at the University of Chicago, goes to the Johns Hopkins University as Professor of Medicine and Physician at Johns Hopkins Hospital.

The Annual Banquet of the Alpha Omega Alpha Society, which is an honorary medical organization, was held May 26, at the Great Northern Hotel. The principal speech was made by Prof. William E. Quine, of the College of Physicians and Surgeons. His subject was "The Ideals and Practices of the Medical Profession." Other speakers were Prof. W. S. Hall, Northwestern Medical College; Prof. Bayard Holmes, Physicians and Surgeons', and Prof. S. W. Williston, University of Chicago. Prof. Joseph B. De Lee was toastmaster.

Study of Chicago's Decreasing Mortality.—Further study of the decreasing mortality in Chicago during the last ten years compared with the immediately preceding decade, corroborates the assertion made in a previous bulletin, to-wit, that the greatest decrease are among diseases over which sanitary administration and preventive medicine have greatest and most direct control. The decrease is in no wise connected with the "wonderful climate of Chicago," to which it is so often attributed by those compelled to take cognizance of the fact, nor to any occult or mysterious agency.

Results of Examinations for Senior Physician at Dunning Institutions.—The County Civil Service Commission has announced the results of the recent examinations, as follows: Nervous and Mental Diseases: Drs. Joseph M. Kearney, Hospital for Insane, Elgin; Ralph C. Hamill, Chicago; Ernest S. Moore, Chicago; Groesbeck Walsh, Chicago; Benjamin Landau, Dunning; Clara Dunn, Chicago; Julius F. Wen Gleski, Chicago; Goodrich Snow, Princeton; I. G. Blackmer, Dunning. Tuberculosis: Ernest S. Moore, Chicago; Benjamin Landau, Dunning. Medicine: Ralph C. Hamill, Chicago; Benjamin Landau, Dunning; Goodrich Snow, Princeton; Julius F. Wen Gleski, Chicago.

GENERAL.

Lane Lectures.—Sir Patrick Manson has been invited to give the Lane lectures at the Cooper Medical College, California, this year. He will lecture on some aspects of tropical diseases.

Prof. Langley at Meran.—Professor J. N. Langley, of Cambridge, will give one of the general lectures at the meeting of the Association of German Scientific Men and Physicians, which opens at Meran on September 24. His subject will be "Recent Researches on the Nervous System."

Changes at the University of Colorado.—At the University of Colorado, Dr. M. E. Miles, who has been demonstrator of anatomy, has been appointed professor of anatomy; Dr. E. H. Robertson, professor of bacteriology and pathology, has resigned to engage in other work; and Mr. G. S. Dodds has been appointed instructor in zoology.

Awarding of Medals.—The Baly medal, given every alternate year on the recommendation of the president and council of the Royal College of Physicians of London, for distinguished work in the science of physiology, especially during the two years immediately preceding the award, has been awarded to Professor Pavlow, of St. Petersburg. The Bisset Hawkins gold medal for 1905, given triennially for work deserving special recognition, as advancing sanitary science or promoting public health, has been awarded to Sir Patrick Manson, K.C.M.G.

Bubonic Plague in Scotland.—Four cases of bubonic plague are reported as occurring in the family of a laborer in Leith, Scotland. It is believed that the source of infection was rats, as the infected area is near the water front and infested with those animals. Recently an increased trade has developed between Leith and eastern ports, and although no case of plague or suspected plague has occurred on any of the ships coming from those ports there has undoubtedly been ample opportunity for the importation of rats. Stringent measures have been taken to prevent the spread of the infection, and it is believed that these measures will prove successful.

A Field for Orthopedic Hospitals Outside the Larger Cities.—The first annual report of the New Jersey Orthopedic Hospital and Dispensary, located in Orange, has recently been published. The record of the work accomplished thus far is a sufficient proof of the need of such an institution in New Jersey. In the period of fourteen months covered, one hundred and forty-six patients were treated at the dispensary with a total number of 1,630 calls. The dispensary is open two afternoons each week. The hospital has cared for thirty-four patients, its capacity having been gradually increased from four to eight beds. Fifty-one operations were performed during the year. One feature of the work has been of especial value. A class in gymnastics is held on each clinic day, in charge of a special physician, and individual supervision is given to the exercises of those patients needing special treatment. A marked improvement in the physical condition of those under his care is apparent.

A Relief to State Hospitals.—The adoption of a plan for boarding out harmless insane, improvements in the present unsatisfactory methods of deporting the alien insane, the employment of a dietist at every hospital for the insane, the early construction of the proposed reception hospital in New York and the construction of a new hospital between New York and Poughkeepsie, are the more important matters

urged in the twelfth annual report of the State Charities Aid Association. In Belgium and Scotland, the report says, 20 per cent. of the entire insane population is provided for in private families with good results, and it is declared that if only one-half that number were so provided for in this State, "the present overcrowding of the State hospitals would be entirely relieved and new construction could be altogether devoted to the accommodation of the expected increase of the insane in the future. As to improvement in the methods of deporting insane aliens the report recommends a system of cooperation between the State hospital authorities, the immigration authorities and the agents of steamship lines. The association lays stress upon the importance of a diet suitable to particular cases and recommends the employment at every hospital of a dietician who ought to be a graduate of a normal domestic science course of two years and to have had practical experience. Other important topics are under consideration. Some change in the mode of governing the hospitals is contemplated by reason of the recently signed bill restoring the old Board of Managers to control, wrested from them by the Odell regime with the idea by concentration of making more political capital and also of providing jobs for hungry henchmen. It would be premature to say that the restoration of the local boards will prove all that is hoped for.

Sir Frederick Treves' Estimate of the Japanese.—Sir Frederick Treves, the eminent British surgeon, in a speech at the dinner of the Japan Society in London, the other evening, spoke enthusiastically of the medical and surgical skill of the Japanese. He said that anybody desirous of seeing the last thing, the most ingenious thing, and yet the simplest thing in the equipment of war, must go to Japan. Many of the problems which concern European armies, and have been to a large extent, a terror of war in European countries, the Japanese were solving or had solved. British troops, he said, enter a war with many determinations. One is 10 per cent. of sick. It is what they are accustomed to expect to get, and they get it. The Japanese are quite content with 1 per cent. of sick, and they get it. It was a question of ambition, perhaps, he said, but one which might well be imitated. Proceeding, the speaker said, he was convinced that Japan not many years hence would provide one of the most remarkable schools of surgery that the world has ever seen. "You will understand why," he continued; "there is the infinite patience of the people, their infinite tenderness. Kinder, more sympathetic people do not exist. Then comes one very important factor, at least, in the making of a surgeon; they have no nervous system. Nerves is an untranslatable term in the Japanese language. I am confident that we shall find in the islands of Japan, not many years hence, one of the most curious, interesting and progressive schools of medicine that this world has seen."

OBITUARY.

Dr. Henry P. Stearns, who recently resigned the superintendency of the Hartford (Conn.) Retreat for the Insane, died last week at Hartford, Conn., aged seventy-seven years. He was a graduate of Yale College and Medical School and was the first surgeon commissioned for a volunteer regiment in the Civil War. He was on General Grant's staff, and became a lieutenant colonel.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, May 13.

MR. CHAMBERLAIN ON TROPICAL MEDICINE—THE ANTIVIVISECTION MOVEMENT—THE TRAINING OF MIDWIVES—BUBONIC PLAGUE AT A SCOTTISH SEAPORT.

On May 10 a big effort was made to enlist the practical sympathy of the public on behalf of the London School of Tropical Medicine in the shape of a great banquet at the Hotel Cecil, presided over by Mr Chamberlain, to whose initiative the School owes its establishment. Whatever differences of opinion there may be about his fiscal policy or his personality, it is a simple truth that he was the first British statesman who showed any sense of the importance of medical science in colonization. For this alone his name deserves to rank among those of men who have best served the British Empire. Inspired by Manson he has taken a most active part in promoting the study of tropical diseases. During the six years of its existence the School has taught a large number of practitioners how to deal with the strange diseases they will meet in the tropics and how to use the opportunities which come in their way of adding to the store of knowledge. But it has only a meager endowment, and its very success, which makes bigger buildings and a larger installation necessary, makes the want of money acutely felt. Mr. Chamberlain, though barely recovered from a recent indisposition, pleaded its cause very effectively. He said his interest in the study of tropical diseases was unexhausted, and, indeed, inexhaustible. He could not think of any subject of scientific research and philanthropy which was of more interest. Its pursuit was a duty which we owed to the Empire, and from which we could not divest ourselves. This duty had extended of recent years with the extension of our territories. We owed the duty to those vast populations for which we had gradually made ourselves responsible. We owed it still more to those of our own race who were daily risking health and life in order to maintain the honor and the interests of this country. We must go on till something like rough justice and order had been introduced into territory for which we were responsible. Hence, we had many little wars from time to time on our hands. But if every life that was lost in the whole of that series of campaigns was counted, the total would not approach to more than a fraction of the native population destroyed every year before our advent. In all this work the pioneers had suffered from their ignorance of the new conditions they would have to face and our inability to deal with them. The result had been that many of them had left their lives behind them. It was true, as Kipling said,

On the sand-drift, on the veldt-side, in the firm scrub we lay,
That our sires might follow after by the bones on the way,
Follow after, follow after. We have watered the root,
And the bud has come to blossom that ripens for the fruit.

Some of these sacrifices must be made, but our duty was to reduce this blood tribute to the utmost. A great opportunity had now come. Altogether 503 students had passed through the London school.

He need not dwell on the advantages of such an institution, for though they were still at the beginning of their inquiry, they had shown how much they had been able to do in uprooting yellow fever, malaria, and kindred diseases. Sir Patrick Manson is usually an impressive speaker, but on this occasion, unfortunately, he was quite inaudible and even the reporters of the leading newspapers were baffled. The result of the banquet was fairly satisfactory, nearly $50,000 being subscribed. But more than ten times that amount is needed to make the School completely equal to the great task which it has to fulfil.

While Mr. Chamberlain was dwelling on the value of medical research work to the nation and to the whole human race, the antivivisection fanatics were holding a meeting in which it was denounced as the work of the devil. The merits of the two cases might accurately be gauged by the quality of the audience. While Mr. Chamberlain was listened to, and at frequent intervals loudly applauded by men whose names are familiar as household words in the mouths of English-speaking people throughout the world, Mr. Stephen Coleridge, the leader of the enemies of science, spoke to a number of fine ladies, sportsmen and parsons. Lord Llangattock, a mighty slaughterer and maimer of pheasants, who was in the chair, said the National Antivivisection Society now has thirty-five organized bodies aiding its efforts. He did not mention that the antivivisectionist camp is torn by contending factions which abuse each other with unedifying rancor. The noble chairman went on to deny with some vehemence that the Society was working against the medical profession; there was, he said with pharisaic unction, no profession for which they had greater respect, regard and admiration. It was not the 40,000 medical men whom they opposed, but the 340 vivisectors. Mr. Coleridge moved a resolution calling upon Parliament "to make the torture of animals for scientific knowledge a crime." He spoke strongly of the immorality of vivisection, but in one respect a remarkable change of tone was noticeable. It was not that he did not ask that all experiments on living animals should be made unlawful. This line he has taken before, for the excellent reason that he does not think such a bill could ever pass. That is the difference between him and those of his own fold who differ from him; they demand total abolition, while he will take what he can get. But on the present occasion, Mr. Coleridge said that if they were to ask Parliament to abolish the painless experiments, ending in the animal's death, they would be asking that the man of science should be placed lower than the slaughterman. From him this is an immense concession; a little while ago he could not say anything bad enough of men of science. Discussing the claims made on behalf of vivisectors that they had conferred great benefits on the human race by their practises, Mr. Coleridge said he had looked into the death-rates, as set out in the Registrar-General's returns, in connection with certain diseases. The best test as to whether a disease was being cured or not by a particular practice was to be found in those statistics. Taking diphtheria, it was said that that disease was to be stamped out by the use of antitoxin, which was first produced in 1894. The death-rate per million for the ten years previous to that year was 1,912, but since then it had been 2,603. Then there was cancer, in connection with which an Imperial Cancer Research Fund was started which amounted to £34,000, and experiments on horses were conducted. In 1894 the death-rate from that disease was 593 per million; it was now 872. The more vivisection the higher climbed the death-rate. Whooping cough had not been attacked by the vivisector, and under the care of the doctor the death-rate had gone down from 425 to 285; scarlet fever was in the same position, and the death-rate had fallen from 402 to 125 in ten years. In 1884 there were 419 deaths per million from measles, now the deaths were 274; and dysentery, also free of the vivisector, fell from 1,008 in 1884 to 551 last year. This is a fine example of the way in which the antivivisectionist uses figures to bolster up his case. A Mr. Channing, who, it appears, is an ornament of the British Parliament, gave his hearers the interesting information that one of his relatives recently took a profound interest in the United States against the extension of the practises they condemned, under various disguises, to human beings in hospitals! He added that people should realize that those who could torture animals were capable of carrying the spirit of inquiry that far. On the whole, the dominant note of the speeches was one of depression. The subject of vivisection excites little interest; the more sensible part of the public was so disgusted with the methods of the antivivisectionists as revealed at the trial of Bayliss *vs.* Coleridge two years ago, that they will not listen to the fanatics who denounce experimental research.

The Midwives' Act, which was passed in 1902, came into operation on April 1. It was bitterly opposed by a section of the medical profession, ostensibly on the ground that the attendance on women in labor by other than qualified medical practitioners would be hurtful to the community, but really, it is to be feared, for less avowable reasons. It was proved, however, that there was a crying need for the provision of proper care for a vast number of women too poor to pay a doctor. The average number of deaths of mothers in England from puerperal fever is now between 2,000 and 3,000 a year, and 30 per cent. of people in four institutions for the blind have lost their sight from ophthalmia, caused by insufficient care at birth. It is estimated that 60 to 70 per cent. of births, and in very poor districts even more, are attended by women. Admittedly, these women have been quite inadequately trained; many, indeed, have had no training at all. The result is that their methods are bad; they are not scrupulously clean, and they lack knowledge of antiseptics. The Midwives' Act is intended to counteract this state of things. From April 1 no woman may call herself a midwife unless she is certified by the Central Midwives' Board, and after five years' grace no one may practice for fee or reward unless so certified. From April 1 no one will be certified without passing the examination of the Central Midwives' Board. The old midwives are resigning their practices very largely, not caring to comply with the new regulations, or being afraid of inspection. Great hardships will thus be inflicted on the poor, unless other trained women can take the places of those giving up. Many County and County Borough Councils are therefore giving scholarships or grants to training schools for the purpose of training women as midwives.

An outbreak of bubonic plague is reported at Leith, a seaport near Edinburgh. A laborer residing in one of the poorer quarters of the town was admitted to the Infectious Diseases Hospital suffering

from what was believed to be typhoid fever. Two days later the development of the disease led the medical officer of health to suspect that it was bubonic plague. This suspicion proved correct, and the man died. His widow and two children are also suffering from plague, and they have been placed under observation. Energetic measures are being taken to prevent the spread of the disease. Twenty-five occupants of the tenement in which the family lived have been removed to the reception house for observation, and the authorities have taken measures to close the dwellings. The plague, it is thought, may have been brought by rats from some ship at the docks. The public health committee has therefore sanctioned the engagement of several rat-catchers. Extra staffs are also to be engaged by the Public Health Department, and special precautions will be taken in connection with the shipping at the port. The continued spread of plague in India is causing great anxiety to the Government. Inoculation by Haffkine's method confers merely temporary immunity and the serum treatments have not proved very satisfactory. Moreover, there is great difficulty in inducing the natives to submit to such measures. The Viceroy and many of the most prominent officials in India have been inoculated by way of example, but the mild Hindu simply shakes his head knowingly and says that the stuff used for Europeans is not that employed for the natives. Things are therefore at a deadlock. All the efforts of the official sanitarians have hitherto proved almost futile. The matter is a very serious one not only for India but for the world at large.

SPECIAL ARTICLE.

DINNER TO DR. THOMAS ADDIS EMMET.

Over one hundred physicians assembled in the banquet hall of Delmonico's on Monday evening, May 29, in honor of the seventy-seventh birthday of Dr. Thomas Addis Emmet, the distinguished gynecologist, of New York, whose work attracted so much attention all over the medical world and brought American medical science to the notice of European clinics almost more than that of any other American surgeon of his time. The dinner was presided over by Dr. E. C. Dudley, of Chicago, who congratulated Dr. Emmet on the fact that he had been so judicious in the choice of a birthday, since the 29th of May was also the date of his own entrance upon this mundane sphere.

Emmet's Character.—Dr. Dudley said that while Dr. Emmet's scientific abilities, his patient investigation of difficult questions, and his ingenious application of his knowledge in the solution of them, had made him famous, it was for qualities of heart rather than of head that so many distinguished medical men from many parts of the country had gathered together to do him honor. Of the virtues that befit the physician, Emmet had exhibited all with a brilliancy that could not fail to attract attention. Modesty and philanthropy in the best sense of the word, kindliness toward friends and to his patients, gentleness to those in need, and sympathy for all those with whom he came in contact, were his most prominent characteristics. The roll of his good deeds, and long enough it is, is known by many, yet the number of those unknown are surely greater. Civic virtues, too, he exhibited in a way that makes his life an exemplar for the present and the coming generation. And yet there was in the midst of all this a simple humaneness of sympathy that attracted all those who knew him. As the spectrum contains all the briliant colors, yet when combined gives only the mild radiance of pure white light, so Emmet the man seemed the brother and the teacher friend rather than the distant scientist and philanthropist to those who knew him.

Genius of Industry.—Emmet came of preferred not common stock, and one of his most prominent traits of character is the absolute absence of all pettiness, as also of all pretence. He had the moral courage of his convictions, and the persistence of character that enabled him to follow out his ideas in a very wonderful way to happy issue. Above all he had the faculty for hard work. Yet work did not seem hard to him, and after watching him you were always tempted to think that what he was doing was easy, even though it might be time-taking, until you tried it yourself. Emmet's work raised up the science of practical gynecology to a standard it had never reached before and his ideas were fruitful sources of further advances, though when the account is made up it will be surprising how little in reality has been added to the groundwork of science laid by Emmet.

Dr. Dudley then introduced Dr. William M. Polk, of New York, who spoke of Dr. Emmet as a surgeon.

Surgical Career.—Dr. Polk said that all that Dr. Emmet had done for gynecology is even yet not appreciated. The reaction against operations in the more recent times has brought some of Emmet's ideas more into prominence than they have been at any time in the last thirty years. Above all, Emmet realized the limitations of surgery. While he could see many sides of the question and realize and be ready to recognize the value of the work of others along lines quite different to his own, he recognized more than any other when it was true of the art of surgery that it might be said, "Thus far shalt thou go and no further." With regard to many of the chronic forms of pelvic inflammation he said long ago that not radical surgical treatment, but local treatment, in various forms and long continued, would eventually give the greatest measure of relief. This conclusion the gynecologists of to-day, after many years of experience with operative methods, are now ready to acknowledge as the most hopeful principle in treatment. Emmet thus anticipated modernity and the work of the generation of active workers following his own.

Bedside Teaching.—Dr. Polk told the story of once having asked Dr. Emmet to do some lecturing in a medical school. Dr. Emmet said that he was not a lecturer but a teacher. Those who for years from all the United States flocked to the Women's Hospital to take advantage of his teaching realized this better than it can be told in words. If the modern method of teaching by means of actual demonstration from the patient has come to vogue in recent years, most of it is due to the example so well set by Dr. Emmet. His teaching was of the most practical and helpful character. Ideas that were obtained were not vague and indefinite, but just such as could be used with most advantage in the actual practice in medicine. Theories were not exploited, but observations were made and actualities demonstrated. In the history of the rise of medical education in America to its present high standard the name of no man stands higher than that of Dr. Thomas Addis Emmet.

Dr. Emmet, the Litterateur.—Right Rev. John Farley, Archbishop of New York, was then introduced and spoke to the toast of Emmet as a writer on subjects apart from medicine. He said that while he was the only non-medical man present, that fact only added to

iis readiness and his happiness to have the privilege of bringing his tribute to his friend, Dr. Emmet. The njunction of Ecclesiastes is, honor the physician, for n the day of illness you will fall into his hands. Dr. Emmet's literary work that has attracted most atten- ion is undoubtedly his England's Misrule of Ireland for Seven Centuries. This book serves to show very well that while physicians may greet him as a leader in iis own profession, he knows many things apart from iis life work. An American born, but with the blood of distinguished Irishmen in his veins, he set himself o show the world what were the reasons why men of Irish birth and Irish ancestry must ever hold in detes- ation, the part that England has played in Ireland's iistory. While his ancestry made the motive *noblesse oblige* the principal motive of his book, the cause of ruth must have been the main directing idea. Nine iundred volumes were consulted in the preparation for t, and the last word on the subject is said for this gen- eration. His conclusions are worthy of the greatness of soul of a really great man. He preaches patience to Ireland as a panacea for all her ills, and penance to England for her errors in the treatment of the Irish.

Dr. Emmet, the Teacher.—Dr. W. H. Baker, of Boston, said that the striking characteristic of Emmet as a teacher was his originality of idea, his thorough- ness of execution, his ingenuity and skill in the appli- cation of right principles, and the magnetic personality by which his ideas were conveyed to his pupils in all heir fulness. His success may very well be judged from the fact that his pupils are holding positions of mportance and prominence all over this country, and hat they are thus giving a wide sphere of influence to iis teaching. Better than anythng else for his pupils, vas Emmet's own example in his relations to his pa- ients. Once upon a time he showed to Dr. Baker a woman who had been bedridden for nine years and inder treatment for many years, but who at last was completely cured. In another case over twenty opera- ions had been done in his effort to cure an inveterate condition, and it was hard to understand which was nost to be admired, the patience of the operator or the itter confidence of the patient which eventually allowed of a good result in the case.

First Teacher of Asepsis.—One of the most ad- mirable features of Emmet's teaching was his insist- ince on absolute cleanliness in the patient to a degree hat was considered quite unnecessary at that time. The other feature was the cleanliness of the surgeon with cleansing of hands, that was most punctilious at a time long before Lister's ideas began to circulate, or before Pasteur had shown the necessity for such pre- cautions. The Woman's Hospital in New York was for many years a monument to Emmet's infinite capacity for taking pains. The new Woman's Hospital that is rising on the Heights will be a memorial of his life work, for there would have been no Woman's Hospital but for what he showed could be accomplished.

The Medical Author.—Dr. S. C. Gordon, of Port- and, Maine, said that the distinctive feature of Em- net's work at the Woman's Hospital was the permea- ion of all that he did by common sense. His method of teaching was typical of this quality. Only a few students were admitted to see the operations, but they iterally sat at his feet and saw the wonderful work hat he did close up and never so well done as he knew how to do it. This quality of common sense pervades Emmet's text-book on the practice of gynecology, and though now it is considered by the present generation as out of date, this is unfortunate, for it will be found o contain, either in actual teaching or practice, all that is taught to-day. In attention to detail there is no text- book on gynecology that can compare with it. Many a more modern text-book has been made out of it, more or less unconsciously at times, and very few of them contain more than Emmet has, except in the matter of illustrations. Emmet was indefatigable in research, ceaseless in industry, and his text-book shows his power of observation. He told things as he saw them. Such observations are never out of date, and are always a source of interest.

Emmet as a Friend.—Dr. George Tucker Harri- son, of New York, said that Emmet's friends were lit- erally bound to him, in the words of old Polonius, by hooks of steel. Besides this inner circle of friends, few men have ever had so many professional brethren who considered themselves as enjoying the privilege of friendship. His personality was such that all those who approached him felt the intimate sympathy of the man. All over this country there are students from the Woman's College Hospital who feel a close rela- tionship to Emmet, and who value this feeling as one of the privileges of their professional life. It is be- cause of this that so many have gathered to honor him to-night, and that honor must represent the friendly feelings that all are so ready to exhibit on an occasion like this.

The Patriot.—Dr. Francis J. Quinlan, of New York, said that the Emmets had been originally Eng- lish who settled in Ireland some seven centuries ago, like so many other of the English who lived in Ireland, intermarried with the natives and became more Irish than the Irish themselves. Seven generations of the Emmets have been distinguished physicians. At the end of the eighteenth century it was an Emmet who led the first movement against English tyranny, and out of the sentiment created by the cause for which Robert Emmet died has sprung all of the modern movements that have benefited Ireland so much. When the Emmets came to America, in a generation they be- came as American as any of those who had been here for generations. Patriots they have been in both coun- tries, well worthy the honor of their fellow citizens. Thomas Addis Emet conferred honor on the land of his adoption, and the Emmet who is being honored to- night has, by his book on England's Misrule of Ireland, done more to set Ireland's cause fairly before the world of letters than any man of his generation. For the men whose lives mean much for the countries in which they lived there cannot be too much honor, and so the tribute of this evening is only an expression of feelings pent up so long that at last they had to find issue.

Fame Abroad.—Sir William Hinkson, of Mont- real, said it was a pleasure and a privilege for him to accept the invitation to be present at the dinner for Dr. Emmet, for besides the reverence for his scientific work, to know him was to love him and respect him. In traveling over Europe Dr. Hinkson had found that no name was so commonly mentioned in continental clinics as that of Emmet. This was true not only in the larger cities, but even in the smaller university towns. Practical gynecologists thought no encomium too high to pay to his worth as a man and a physician. Personal friends of his know that he well deserves the expression that the French inhabitants of Canada sometimes use with regard to a man whom they thor- oughly respect—"that he is white all through." It is not this operation or that; it is not his book, that means most in Emmet's career, but it is the example of his sterling honesty in his profession and the fact that he has never done anything small or petty. Never did he do an operation for the sake of doing it. With re-

gard to one operation which has been much vulgarized in recent years, Dr. Emmet once said to Dr. Hinkson that he would rather that a few women should have suffered without alleviation than that so many should have been operated upon without reason, and that he would almost prefer not to have been the originator of the operation. Dr. Hinkson said that in Canada Dr. Emmet's estimation is at least as high as in his native country, and the tribute he bears represents the feeling of the profession across the line.

Some Memories.—In his closing address, Dr. Emmet said that an Irish friend of his, who was very old, announced that he expected to see his friends only once more, and that at his funeral. Personally he is very glad that he has the opportunity to see his friends before the funeral. During the week that has passed since he learned of the dinner that was to be given him, he has felt that if he were a woman he would go off into a corner and have a good cry over it. Some of the memories of the past come crowding back, and perhaps there is nothing that he could tell of more interest. Since the age of thirteen he has had to hoe his own row. As a boy he had been a kind of a Buster Brown. He never cared to walk, and many a time has had his ride through the streets of Charlotteville on a razor-back hog. As he grew older he preferred to roam the mountains with his gun to working at his books, until finally he was dismissed from college. Drink or cards meant no temptation to him, but the sunlight was irresistible. Dunglison desired him to study medicine. After he had heard his first medical lecture he knew there was something ahead of him. He lived on two dollars a week and all his expenses were kept under three hundred dollars a year for the four years at Jefferson. MacNevin suggested the taking of the examination for the Emigrant Hospital in New York, and Dr. Emmet had charge of 250 patients suffering from ship fever. In ten days he was down with the disease himself. After his recovery he interested himself in every detail of the hospital work. He volunteered to make the autopsies and made over one thousand. After his service as resident he was given a position of visiting physician, though he was twenty years the junior of the next man on the staff. He was making four dollars a day and got married on that. Then came Sims and the Woman's Hospital experience, and his vocation in life was decided. When he came to New York he had $300 and was very glad to make visits in the tenements for 25 cents a visit, and was especially rejoiced when the money was paid on the spot. He has been blessed beyond the average, and something of the blessings he has tried to pay for by helping young medical men when he could. At seventy-five he began the study of Irish, and has found it one of the consolations of his latter years. To all physicians he would say, have a hobby and get as much fun out of it as you can. A celebration like this to-night makes him feel forty again, and the only thing that he can wish to all the friends who have been so kind to him is that life may flow on as full of sunshine for them to the end of a long, long life, as it has for him.

Dr. Stimson Arrives in Safety. Dr. L. A. Stimson, who took part in the recent yacht races across the ocean, has arrived safely in his Fleur de Lys, after a very stormy passage. The Fleur de Lys was the smallest boat in the race and crossed the ocean in fourteen days and nine hours. For a considerable part of her passage she encountered very adverse weather conditions.

SOCIETY PROCEEDINGS.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twentieth Annual Meeting, held at Washington, D. C., May 16 and 17, 1905.

Second Day—May 17th—(*Continued*).

(Continued from Page 1000.)

Experimental Arteriosclerosis.—Dr. Richard M. Pierce, of Albany, said that until recently there has been no experimental method of producing arteriosclerosis. It has been produced, however, by continued injections of small amounts of adrenalin. When animals are injected on alternate days for several weeks, even though there may be no gross morbid appearances in the aorta, with the microscope the elastic fibres are found to be disturbed in their arrangement, and there is a mechanical injury to the artery. Increase in the doses of adrenalin leads to calcareous degeneration, so that the artery may break between the fingers. Yellow plaques are then to be seen on the surfaces of the artery, and small bulgings are noted corresponding to diffuse aneurisms. In one case distinct degenerative changes were found in the ganglion cells near the aorta. Some of the changes in the aorta may be due to this fact.

Phlebosclerosis of Veins.—Dr. C. F. Martin, of Montreal, said that degenerations of veins have long been recognized. It has been considered that they are due to the same causes as in the arteries. As a rule, however, peripheral veins are much more affected than any others. The veins of the lower extremity suffer most. Changes are often present however, also in the upper extremities. Such venous degenerations are common in young persons. Many of the cases studied occurred in persons under twenty, and all of them were under thirty-five. Certain veins suffer much more than others. Degeneration is extremely common in the internal and external saphenous veins. The affection is more common in males. It is usually not accompanied by arteriosclerosis. There is no portal obstruction, as a rule, nor, indeed, any other cause for the development of the condition. There are no evidences of inflammation.

Metabolism in Acute Leucemia.—Dr. Edsall, of Philadelphia, said that in leucemia there is usually a decided elimination of nitrogen. Curiously enough this same serious disturbance of nitrogen metabolism takes place in purpura. Magnus Levy thought that the loss of nitrogen in these latter cases was due to the hemorrhage. In the case under Dr. Edsall's observation, however, while the nitrogen and phosphates were increased very much after a hemorrhagic attack, the same phenomenon was noted in a subsequent attack which occurred without any hemorrhage. When leucemia is treated by the X-rays it is the nitrogen metabolism that is affected and this constitutes one of the signs of curative effects.

X-Rays in Leucemia.—Dr. Edsall has studied five cases of leucemia which were treated by the X-rays. In three of them apparent cure took place, but were followed subsequently by relapse and death. The curative effect seems to be due to some reaction of the organism to the X-rays rather than to a direct effect of the rays. Later on the organism fails to respond as at first, and then the X-rays fail to be of any use in the treatment of the disease. Undoubtedly one of the dangers of the promis-

ous use of the X-rays should be noted. There is a sudden increase of metabolism, and consequently great elimination through the kidneys. This may give rise to acute nephritis with shortening of life, especially in persons who are not over strong.

Dr. Edsall has tried the X-rays in diabetes, but without producing any effect. His idea was that they might affect sugar metabolism in some way, as they do proteid metabolism is leucemia. In a case of unresolved pneumonia a series of short exposures of the patient to the X-rays brought about a rapid resolution so that at the end of a week it was impossible to tell without the chart on which side consolidation had been present.

Dr. Francis Williams, of Boston, said that the X-rays can now be measured just as other forms of light. The principle is somewhat that of the photometer. In this way the dose of the X-rays can be carefully determined. There is need of such careful determination, for tubes vary very much, and may change from day to day, so that at every application their condition should be determined.

Dr. Ewing, of New York, said that there seemed to be some relationship between acute leucemia and acute yellow atrophy of the liver, even beyond that of the metabolic relation. In a recent case where leucemia developed following pregnancy, identical lesions of the liver were found with those so often seen in connection with yellow atrophy. Of course, this may very well be due to different causes, and the cause of the relationship of the diseases cannot be claimed. With regard to the curative effect of the X-rays in leucemia it must not be forgotten that all of the cases so far treated with apparent success with X-rays for some time have relapse. There are three cases now figuring in medical literature as cures by the X-rays, autopsies on which have been made.

Dr. Edsall, in closing the discussion, said that the most interesting feature of the effect of the X-ray is undoubtedly the fact that the individual patient must react to them. This reaction is quite prompt, as a rule the first time the X-rays are used in leucemia, unless the disease is very far advanced or the patient's vitality has been exhausted. Subsequently, however, this reactionary power disappears, and then the X-rays fail to do any good.

Chronic Acetanilid Poisoning.—Dr. D. D. Stewart, of Philadelphia, reported a case that for a time was considered to be pernicious anemia. It had all the clinical symptoms of that disease, including the pallor with yellowish tinge, the tired feelings, and the digestive disturbances, as well as all of the blood symptoms. There were many different forms of red blood cells, small and large, and there were megaloblasts and normoblasts, and there was a difference in the color-staining properties of the red cells. After a time it was found that the patient had been for many months taking some forty grains of acetanilid per day. As soon as the drug was stopped improvement set in and recovery took place. It is evident that the free use of these pain-dispelling remedies for headache and other vague neuralgic conditions may produce serious disturbances of the blood equilibrium.

Bacterial Toxins and Immunity.—Dr. Victor C. Vaughan, of Ann Arbor, Mich., gave a brief report with regard to certain recent researches in his laboratory on bacterial toxins and immunity. He is of the belief that the animal cells, as, indeed, the cells of all living bodies, is a definite chemical compound. The bacterial cell is also such a definite compound. Around this compound there gather various side chains which may become loosened, and then act as the toxin. Small cells, however, do not produce these loose side chains, but retain their products more in themselves. The diphtheria bacillus is an example of the first of these, and hence the facility with which an antitoxin for it can be produced. The family of typhoid and colon germs are quite different in this respect. It is with the colon germ that Dr. Vaughan's researches have been made. After growing a number of the bacteria all the ordinary solvents are employed to remove all soluble substances, the alcohols, ethers, water, etc., until all extraneous material is removed. Dr. Vaughan is of the opinion that all bacterial toxins, without exception, produce a lowering of the temperature in the animal body.

Theory of Fever.—Fever is really a resistance on the part of the individual to the invasion of bacilli and their toxins. When large amounts of toxic material are thrown into the circulation, then the temperature goes down. If smaller amounts are admitted to the circulation the resistance of the animal sends the temperature up for their neutralization. In animals massive doses of bacteria may send the temperature down far below 90° F., or even down to 75° F., before death occurs. By the injection of colon bacilli from which all soluble substances have been removed such lowering of the temperature may be produced. If the living cells be introduced, the same effect is produced and the pathological result, when the injection is made into the peritoneum is the same in both cases, namely, a hemorrhagic peritonitis. The living cells and the dead insoluble residue have the same effects then in both ways.

Immunity.—Dr. Vaughan has shown that it is possible to immunize animals with the non-poisonous part of the colon bacillus. It seems not impossible, then, that a more definite idea of immunity will be reached, and that as the result of the employment of dead material of definite chemical composition the scientific basis of the immunity reaction may be determined.

Dr. William S. Welch, of Baltimore, said that personally he is not of the opinion that the toxins of bacteria, as now studied in the laboratory, are or represent the true specific poison of bacteria. For instance, it has been impossible ever to produce the specific effects of typhoid fever on Peyer's patches and the like. Impure forms of the toxin are known, but other methods of investigation have to be found before the real specific poison can be reached. As for any immunity obtained by killed cultures of bacteria it is only of comparatively slight degree and passing in character. Behring, with living cultures of the tubercle bacilli, produces enduring immunity. The study of the immunity produced by dead cultures is not likely to be of much importance. There is no doubt that Dr. Vaughan's researches are eminently suggestive, and that they furnish data for further investigations, but as yet scarcely more than this. There is, of course, a difference of opinion among bacteriologists as to the way in which bacteria produce their effects. Some consider that it is the death of the bacteria in the system which causes harm. The other opinion is that it is the growth of the bacteria, with the constant production of toxic substances during that growth, that is the real reason for disease.

Dr. Vaughan, in closing the discussion, said that, as might be expected, there is, of course a differ-

ence of opinion between the biologists and the morphologists with regard to the method of action of bacteria on the human body. This disagreement is not likely to be bridged over. Dr. Welch thinks that bacteria produce different toxins in cultures from those which they produce in the human body. It would seem, however, that bacteria furnish substances just as does the poppy, for instance, no matter where it may grow. Of course, immunity obtained from dead cultures is not enduring. It only enables us to study the problem of immunity in a limited way. No general conclusions can as yet be drawn from the researches that have been made.

Acromegaly.—Dr. Charles L. Greene, of St. Paul, said that the case of acromegaly he reports has been under observation for the last five years, though now about to succumb to the disease. The affection began with changes in the bones of the forearm and of the legs, spreading later to the hands, but for a considerable time not to the feet. A distinctive characteristic was the enlargement of the superior rather than the inferior maxilla. There was a hard edema of the feet and shoulders, for which thyroid extract was given at intervals with good effect. As the patient did not complain much of the edema, it was considered better not to continue the thyroid medication. After a time, in the progress of the disease, there came a shrinking of the thyroid and then the myxedema. Later, as the bones of the shoulder girdle were affected, the patient developed a decided stoop. The first part of the foot that became much affected was the great toe, and this took on extreme enlargement.

Dr. S. Solis-Cohen, of Philadelphia, said that personally he had had under observation a case with this peculiar combination of acromegaly and myxedema. In that case, too, the myxedema yield to thyroid extract. There seemed to be no doubt about the genuine character of the acromegaly, since, though no autopsy was obtained, the patient suffered from a bilateral temporal hemianopsia. This, of course, would be occasioned only by a tumor in the neighborhood of the hypophysis cerebri.

Cirrhosis of the Liver.—Dr. A. O. J. Kelly, of Philadelphia, said that recent studies of cirrhosis of the liver bring out more clearly than before the true nature of the disease. While it is the custom to think of the overgrowth of connective tissue which produces the fibrosis, the most conspicuous feature of the pathological picture, the parenchyma should also receive attention. The characteristic feature of the changes in the cells of the true liver substance is the disarrangement of the normal composition of the liver. Many of the acini will be found to have no central vein. In others the central vein is eccentric, while sometimes what looks like a central vein will be found in the midst of connective tissue. There has evidently been an overgrowth of liver cells during the course of the destructive process at work. This hyperplasia of the liver cells is very striking, and there are many evidences of it. A number of mitotic figures are found, and the irregular arrangement of the new-formed cells is shown by the fact that they are deposited in tissues older than themselves. These younger cells have no pigment in them and no fat, though the substances are characteristic of the liver cells.

Pathological Process.—It would seem that the beginning of cirrhosis is due to some cell poison which produces necrosis of liver cells at a time when the liver is still capable of attempting to make up for its loss by hyperplastic reaction. As a consequence of this, there occurs a rearrangement of the liver cell with the disturbance of the position of the central vein, but not very much atrophy in the liver itself. While the atrophy is supposed to be the prominent symptom of cirrhosis, it is not near so common as is thought, and a certain amount of hypertrophy is much more common than has been imagined, even at advanced stages of the disease.

Enlargement of the Liver.—Notwithstanding the impression with regard to atrophy of the liver and the name atrophic cirrhosis in over 40 per cent. of the necropsis made upon subjects dead from cirrhosis of the liver, the organ is found to be enlarged. In fact, in nearly all cases in which ascites occurs in the terminal stage the liver is found to be enlarged. The ascites is not due, as has often been said, to interference with the portal circulation by the occurrence of contraction of the liver, but is due, rather, to changes in the peritoneum. Not infrequently tuberculous peritonitis is found to be present. As a matter of fact, a second reinfection with tubercle bacilli on the peritoneum seems to be of very frequent occurrence in cirrhosis of the liver.

Artificial Cirrhosis.—Dr. Richard M. Pierce, of Albany, N. Y., said that of late it has been found that artificial cirrhosis of the liver could be produced. The most characteristic feature of this is the production of new tissue which gives some idea of the course of cirrhosis. When produced in animals, however, the cirrhotic process does not occur at the periphery of the lobule, as in man, but near its center. This, of course, produces a very different pathological picture, and yet is suggestive because the production of fibrous tissue so closely imitates that seen in human beings.

Exophthalmic Goiter.—Dr. MacCallum, of Baltimore, said that as the result of a study of twenty-eight cases of exophthalmic goiters the question of the definite lesion in this disease would seem to be answered. It has sometimes been said that no definite specific anatomical change can be found. This is especially asserted by German observers, but the difficulty seems to have been that they were working in a region where endemic goiter is so frequent as to obscure the proper picture of exophthalmic goiter. In the cases examined at Johns Hopkins the change found in the thyroid resembles a compensatory hypertrophy. There is a budding or proliferation of the alveoli of considerable extent, so that some of the alveoli seem to be separated from others, and to be, as it were, out of direct connection with the others. These changes are not of equal intensity all over the gland, nor are they always proportionate to the severity of the symptoms in the particular case.

Other Pathological Conditions.—Careful study has been made of the parathyroids, but these have been found to be normal in nine cases in which careful investigation was made. There are subsidiary changes in the lymphatics of the thymus gland, and this organ is at times enlarged and persistent. The course of the affection seems to be that there is primary injury of the thyroid gland, which is followed by thyroiditis. As a consequence a proliferation ensues with the cutting off of some of the new-formed tissue from the regular lymphatic system of the thyroid gland. Hence, the absorption of thyroid substance in too great degree. Some changes in the lymphatics in the neighborhood of the thyroid gland have also been noted.

Dr. MacCallum, in answer to a question, said that he had not examined the cervical sympathetic in

these cases, but that there did not seem to be any necessary connection between the thyroid and the sympathetic in the neck. Some surgeons, as Jonesco and Jabolay, had reported improvement of patients suffering from exophthalmic goiter after the removal of the cervical sympathetic, but these cures had not been confirmed by others. It is easy to understand how the removal of the cervical sympathetic would favorably affect the exophthalmos. It would be hard to understand, however, in what way it could affect the other symptoms of the disease. Of course, the claim had been made that all the symptoms of exophthalmic goiter had been relieved. This is, however, a dubious matter.

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

First Annual Meeting, held in Washington, D. C., May 18 and 19, 1905.

FIRST DAY—MAY 18TH—(*Continued*).

(Continued from Page 1003.)

CLINICAL AND CLIMATOLOGICAL SECTION—(*Continued*).

Pulse and Blood.—Dr. De Lancey Rochester, of Buffalo, said that the pulse is distinctive in early tuberculosis, and should be more insisted on. It is rapid, especially after even slight exertion, and is usually of low volume. The characteristic symptom in the blood is a lessened number of white blood cells. In a recent case in which there was persistent cough, but no physical signs, there seemed to be quite enough changes in the mucous membrane of the nose and throat to account for the expectoration which occurred. After several examinations, the tuberculin test was applied, and proved of good service. In cases where there is suspicion of tuberculosis, the nose and throat should be carefully examined at the very beginning.

Medical Students.—Dr. Potter, of Indianapolis, said that it is a matter of surprise to find how few medical students have any proper realization of incipient tuberculosis. In a recent test of his own junior students at Indianapolis, only three out of eighty had any good practical idea in the matter. Part of this is due to the fact that typical cases are taken for the sake of study, and advanced cases rather than those in the initial stage, which do not give such satisfactory symptoms, for purposes of study.

Mitral Stenosis and Pulmonary Tuberculosis.—Dr. Howard Anders, of Philadelphia, said that too much dependence must not be placed on the patient's physique, and it must not be allowed to influence the physician's judgment too much. In certain physiques the presence of mitral stenosis, with its tendency to cause whatever colds are contracted to be prolonged, with its tendency also to produce slight pulmonary hemorrhage, may very easily and indeed is often mistaken for pulmonary tuberculosis. With regard to auscultation for mucous clicks or crepitant râles, Dr. Anders suggests that if the regular method of examination is proceeded with in the usual way, some aids to diagnosis may be lost. It is probably only during the first few deep breaths that râles are heard in very incipient cases. If during the course of inspection the patient is asked to breathe deeply the opportunity to hear these râles is lost. On the other hand, it must not be forgotten that tuberculosis patients are often poor breathers, and that there may be atelectasis of a lobule of the lung which may, during percussion, cause a difference in the note as compared with the other side. On the other hand, there may be a small area of collapsed lobule, which at a single deep breath may produce adventitious sounds when the vesicles are being opened up. These are the refinements of diagnosis, but represent the care needed for the obtaining of definite knowledge.

Holding the Breath as an Aid.—Dr. Alfred Mayer said that in examining tuberculous patients he is always careful to examine their hearts also. During this time he asks them to hold their breath. Immediately after this he has them breathe deeply, and then transfers his stethoscope to any suspicious part of the lung, and is usually able to hear any râles that may be present. This bit of technic of having patients hold their breath makes up for the deep breathing during inspection. Dr. Mayer said that the general impression among those who have seen most tuberculosis, is that the affection is very seldom associated with mitral stenosis. As a result of a leakage of the mitral valve, there is a backing up of blood in the lung and the consequent production of congestion. This seems to act as a protective against the invasion of tuberculosis, or at least prevents its rapid course. It must not be forgotten that mitral disease may give rise to infarcts in the lung, and that these may seem to be areas of tuberculous infiltration later on.

Dr. Solly, of Colorado Springs, said that recently he has found the X-rays very valuable in the diagnosis of early cases of tuberculosis.

Exact Thermometry.—Dr. C. L. Minor, of Asheville, N. C., said that he has usually been careful to buy only the most highly recommended thermometers. He has insisted upon having those of a well-known London maker, each one of which is issued with a certificate declaring that it has no errors. Recently he obtained six dozen of these thermometers and sent them to the U. S. Government testing bureau, in order to be sure of their exactness. The Government does not pass any thermometers which vary by more than three-tenths of a degree. One dozen of these certified thermometers were rejected entirely. All of them had some error, notwithstanding the statement on the certificate that there was none, and in only a few of them was the error less than one-tenth of a degree. It is necessary then to have thermometers carefully tested, and not by the maker of them. Dr. Minor considers that the use of the blue pencil in delineating affected areas and the movements of the diaphragm in tuberculous cases is unfortunately neglected to a great extent in this country. It represents, however, the only way to be sure about diagnosis.

Dr. Pryor, of Raybrook, N. Y., said that a distinctive characteristic of tuberculous affection was the change in the pitch of the whispering voice.

Dr. Mannheimer, of New York, said that the roughness of the expiration in tuberculous disease is due not only to congestion of the mucous membrane of the bronchi, and to the presence of secretion on the mucous surface, but also to a certain amount of tuberculous peripneumonia. With regard to terms, it is important to be careful, since very few physicians agree as to the exact significance of such names as the mucous click.

Open-Air Treatment of Surgical Tuberculosis.—Dr. William S. Halstead, of Baltimore, said that while so much had been done for pulmonary tuberculosis by means of the open-air treatment, little had been accomplished for the patients suffering

from surgical tuberculosis. Fifteen years ago, when he came to Johns Hopkins, he resolved to try the effect of the open-air treatment on some of these cases, and the results have been most promising. At the beginning there was difficulty of persuading patients of the possibility that fresh air could do much for deep-seated lesions. One patient asked how air, even though ever so deeply breathed, could reach the bone? As more and more patients were improved, however, by this simple method of having them live in the open air, it became easier to convince others, until now there are some sixteen patients who have been treated successfully in this way.

The King's Evil.—This is not, however, the first time that this method of treating surgical tuberculosis by open air has been exploited. There are century-old traditions of the cure of scrofula in England, by means of the king's touch. Patients traveled from long distances to be touched by the various English kings, and there is no doubt that many of them were cured. The therapeutic agent that proved so effective in these cases was mainly the opportunity that such patients had for outdoor life for long periods, together with the change of scene, and then the influence of suggestion, in their assured hope that they would be cured by the king's touch. It was the custom also to consider it a privilege to feed such patients well, as alms-giving, on their way to and from the ceremony for touching for the evil. Besides a certain sum of money was furnished to each of those who were admitted to the king, and this enabled them often to live better than they had for a considerable period before. This was then just the fresh air and abundant diet treatment of most modern times.

Acute Affections and Fresh Air.—Besides the chronic surgical affections, certain acute disorders have proved quite amenable to the fresh-air treatment on the bridge at Johns Hopkins. A very notable example of this is the case of a young girl who, after operation, suffered from septic infection. Her temperature ran from 101° to 106° F., and she had the chills and sweats of a septic condition. After vainly being treated within the hospital, she was transferred to the bridge, and while in the open air began to improve at once.

Illustrative Cases.—Dr. Halstead then gave some examples of the improvement of patients suffering from tuberculous affections of bones, after their removal to places where they spent most of their time in the open air. In one case of Pott's disease with sinuses, the patient began to gain in weight at once, and with the gain in weight there came a gradual closing of the sinuses. In a hip-joint case that had lived for seven years in the mountains, but with the open-air treatment improperly understood, gained 11 pounds during a few weeks in the open air of the Adirondacks properly understood. Motion returned in the hip, and then she began to indulge in dancing and neglected outdoor air treatment. Later there came a swelling at the wrist, which proved to be tuberculous, and had to be opened. The patient gained 16 pounds in weight in a month at Saranac, and the condition in the wrist improved with a rapidity never seen in hospital treatment. In a patient suffering from sacroiliac disease, the tuberculous abscess filled the pelvis almost completely. After a slight operation, she was removed to the Adirondacks, and at the end of a season had gained 36 pounds, and no sign of the abscess was left.

Enormous Cervical Glands.—One of the most interesting cases under Dr. Halstead's observation was that of a young woman suffering from enormous cervical glands. These occurred on both sides of the neck, and were as large as cocoanuts. The swelling was hard and nodular, and each gland seemed to stand out separately. It was considered to be Hodgkins' disease at first. A gland was removed for diagnostic purposes, and was found to be tuberculous. All the glands on one side were then removed surgically, but the patient seemed scarcely able to bear the removal of the glands on the other side at that time. She was sent to the mountains, and after six months the enormous glands on the other side had completely disappeared. She was left then without an ugly scar, that would otherwise have been present, and which, it must not be forgotten, is so apt to become keloidal in tuberculous cases.

New York Experience With Surgical Tuberculosis.—Dr. John W. Brannan, of New York, stated the experience with the treatment of surgical tuberculosis by means of the open-air regime. Patients were kept all last summer in tents at Coney Island, the tents being perfectly open, and did so well that when the winter came, it was resolved to continue the open-air treatment. The windows of the ward in which the children slept during the winter time were open on two sides for all the winter. They were closed only for a short time while the children were dressing in the morning and going to bed at night. The children slept well and did not complain of the cold. In this open air the starting pains at night were extremely rare. While the attending physician was required to keep his hat on on account of the cold, the children laughed at him for his suspectibility, and with red cheeks and warm hands played about him and evidently enjoyed it very thoroughly. On Christmas Day the children gathered around the bonfire in a snowstorm outside and listened to stories of Brer Rabbit. They are kept very warmly clad and wear hoods at night, and gloves, if there is any tendency for their hands to be cold. During the day their gloves are usually hanging around their necks. Sinuses that have proved most obstinate of treatment heal very kindly under this method, and patients begin to gain in weight at once, and retain their weight in spite of abundance of exercise.

Tuberculosis Patients and the Native Population.—Dr. C. F. Gardiner, of Colorado Springs, discussed the influence of the advent of tuberculous patients upon a native population. The experience in Europe, with sanatoria for tuberculosis in towns, is that far from causing an increase in the death-rate from the tuberculous in the neighborhood, their presence causes a decrease because of the knowledge of the disease which they disseminate, and the methods of prevention which they teach. The collection of statistics shows that even in such places as Nice and Mentone, where large numbers of the tuberculous gather, and where the disciple is not very exact, there is yet no increase in the death rates from tuberculosis in the population. It was thought for a time that the large mortality among the Kaffirs in South Africa, wherever they came in contact with civilization, was a contradiction to this proposition, but as a matter of fact statistics show, according to explorers, that even in the interior of the country, where the Kaffir population are away from the whites, there is also a large death-rate from tuberculosis. As a rule, native savage populations have very little resistive vitality, and the disease rages very virulently among them. It would appear that somehow as a result of

the spread of the disease a certain amount of immunizing influence has been exerted. There is no ground, however, for the fear that the establishment of tuberculous sanatoria will prove a danger for the surrounding population.

Climate in the Treatment of Tuberculosis.—Dr. C. L. Minor, of Asheville, N. C., as the Chairman of the Committee, presented the report on the rôle of climate in the management of tuberculosis. He said that in the past doubtless too much had been thought of the effect of climate in curing this disease. Now the pendulum had swung the other way, and too much was thought of fresh air alone, without any regard to climate. Undoubtedly some of the present depreciation of climate in the treatment of tuberculosis is due to the improper advice given to patients. They are told to go to a particular climate and live out and eat. As a rule, improperly controlled, they either do not improve in health, or, if they do, they return to their homes uninstructed as to the habits of life necessary to maintain their health and relapses occur. Besides this, many hopeless cases are sent, and the failure of these to improve helps to throw doubt on the efficiency of climatotherapy.

Therapeutic Effect of Climate.—It is impossible to say just what is the therapeutic effect of climate. But then, too, in spite of the advance in chemistry, it is impossible to say just what is curative in mineral springs. It is well known, however, that artificial mineral water, made after the most careful analysis, is not as effective as the original natural mineral water. As a rule, in favorable cases, the discomfort of tuberculous cases disappears sooner in a proper climate than under any other remedial measure. Climate is not a specific, and yet it has an undoubted effect. Climate is not the first element in the treatment of tuberculosis, diet and hygiene being most important; but it is a very important element. The most important qualities needed in the climate are sunshine and absence of rain. The almost absolute purity of the air in high altitudes undoubtedly is one of the effects of climatotherapy. Reinfection by pus micro-organisms and irritation by dust are the serious objections to life in cities and towns.

Equability Not Important.—It used to be thought that an equable climate without large variations in the temperature was an important element in climate; but it is now known that temperature variations stimulate most patients, and help them to improve more rapidly. Wind, if not directly upon the patient, has a good effect, probably because of the purification of the air. The temperament of the patient has much to do with the effect of climate. If patients are easily inclined to be homesick, and if they are intractable, then a cure need not be expected. Climatic resorts must be considered as universities, with the doctor in charge as a teacher instructing the patients, so that, for their own good, as well as for that of others, they may understand their condition, recognize the dangers of their disease and the methods of avoiding it, and of preventing relapses.

Climate Not an Element in Tuberculosis Therapeutics.—Dr. Lawrence Flick, of Philadelphia, said that while the report of the committee was conservative, he cannot agree with it. After twenty years of experience, first as a patient in nearly all climates, and then as a physician in charge of tuberculous patients who had tried all climates, he did not consider that climate had any effect in the treatment of tuberculosis. It is a common-sense method of living that is the important question for the cure of tuberculosis, and this remained so in any climate. He has obtained some of his best results in the slums of Philadelphia, under apparently the most unfavorable conditions. Proper life in the open air with appropriate diet and discipline are the factors that make for the cure of tuberculosis. Climate certainly can be considered in no sense an important factor. This must be insisted on, because three-fourths of the patients suffering from tuberculosis cannot seek a climate, and if climate is considered an important element in cure, they may easily become dicouraged.

Sanatoria, Not Climate.—Dr. Kein, of Iowa, said that it is sanatorium treatment in the climatic resorts, and not the climate itself, that does good for tuberculosis. Painstaking medical supervision is needed. Where this is missing no improvement follows. Thousands have gone from the Mississippi valley to various climates to be cured of their tuberculosis, and only tens have returned with decided improvement. Even of those not a few have suffered relapses. The important treatments for pulmonary tuberculosis are fresh air and diet, and not any special location.

Dr. Knight, of Boston, said the profession should be happy in the results that it can obtain at home. It is, however, not the tuberculosis that is to be treated, but the individual suffering from tuberculosis. A change of climate has an excellent effect, even on healthy individuals, increases their appetite, and gives them a new sense of vital activity. It will do this also for the ailing. It depends then on the particular climate on the individual. If homesickness becomes an important element, then the sending away from home is a mistake.

Dr. Weil, of Cincinnati, said that most of his clientele cannot go away for the benefit of climate. They must be cared for at home. Undoubtedly good results can be obtained by proper direction and discipline, with diet and fresh air at home.

Dr. Stevens, of Iowa, said that there is danger of a report like this doing considerable harm at the present moment. A number of the legislatures of various States in the Union are now engaged in considering the problem of erecting sanatoria for the treatment of those suffering from tuberculosis. They have been told that the disease is curable if taken in time, and that sanatoria erected in each of the States will be quite sufficient in bringing about cure, as those at a distance. If the present report, insisting so much on the importance of climate, be adopted, it may well embarrass legislation and put back for a time the necessary appropriations for carrying out of the beneficent work which it has taken so long to organize.

On motion, the report of the Committe was adopted as read.

SOCIOLOGICAL SECTION.

FIRST DAY—MAY 16TH.

The Section was opened by the address of the Chairman, Mr. Homer Folks, of New York, the ex-Commissioner of Charities of New York City, and Secretary of the New York State Charities Association. Mr. Folks recalled how much had already been accomplished in the crusade against tuberculosis all over the country, and especially in New York City, and then set forth the continuance of this work, as an excellent investment for the community. The public health is, after all, the basis of the citizens' earning capacity, and improvement in it can be reached in dollars and cents.

Looked at merely from a commercial standpoint, no greater benefit could be conferred upon any city in the United States than the eradication of tuberculosis within its limits, and the removal of all those suffering from the disease. The gains that have been made in recent years show the possibility of this, and show that the methods that have been employed may be rendered even more effective in the future. Like public parks, the city's health is a real investment.

Return on the Investment.—The benefits derived from large expenditures for the public health could not, it is true, be converted into cash, but it is not the habit of our cities to go into liquidation, and while the public health is not an available asset, in this sense of the word, it is nevertheless an economic asset of the highest value, contributing to the economic strength of the people, furnishing the foundation upon which the entire superstructure of municipal credit and life is built. A strong people, relieved of unnecessary burdens caused by sickness and death, can bear other and larger burdens of taxation for public purposes. From every point of view, therefore, it seems that no American city at the present time can find a more appropriate subject for permanent investment, yielding larger returns, than in carrying into effect the measures set forth at this meeting of the National Association for the Study and Prevention of Tuberculosis.

(To be Continued.)

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, held March 7, 1905.

The President, Joseph Fraenkel, M.D., in the Chair.

A Case for Diagnosis.—The patient, presented by Dr. Smith Ely Jelliffe, was a woman thirty-three years old, a dressmaker by occupation. She had seven sisters and one brother alive and in good health. One sister had died of consumption. Her father, who was alive at sixty-five, was a hemiplegic. Her mother was seventy years old and enjoying good health. The patient had scarlet fever at age of seven years. Following this attack she was weak for a long time and would fall easily. There was no history of hemiplegia at this time. Later in childhood she had measles, whooping-cough and diphtheria. She had an attack of jaundice when she was twenty-two years old and malaria six years ago. Her menstruation began when she was about fourteen, and was regular, lasting two days. Some years ago she had an attack of sciatica, and gave a history of painful swellings in the axillæ, elbows and knees, possibly due to some lymphatic infection. When she was eighteen she fell, striking the back of her head, resulting for a time in severe headaches. Her present illness began two years ago, and its onset was gradual. She first felt pain in the little finger of the left hand. This was burning in character, and ran up and into the shoulder along the course of the sterno-cleidomastoid to behind the ear. The pain persisted for some time. Then the hand began to shake and grow weaker. The pain had lasted several weeks before the tremor and weakness became apparent. The tremor at first was very pronounced. About a year later she noticed a loss of power in the left leg, with stiffness and drawing up of the muscles, and some pain in the knee. During the past summer the pain had been referred to the ankle. She also complained of frequent attacks of diarrhea, with colic. There were no bladder symptoms. An examination of the eyes showed slight transitory diplopia and occasional nystagmus. No impairment of sight. There was slight and transitory inequality of the pupils; no Argyll-Robertson pupil. Consensual light reflex normal. Skin reflexes normal. No pains; no anesthesiæ; no disturbance of heat and cold sensations; no Romberg. Slight tremor of head at times. Musculature good. There was weakness and stiffness of the entire left side, more marked in the upper than in the lower extremity. No sensory changes in the entire body. The reflexes were increased on the left side. No Babinski; no clonus; no tremor of leg. The tremor of the arm was coarse, of the semi-intentional type, but not typical. The heart sounds were exaggerated, but there was no murmur. The leg dragged; there was marked stiffness and rigidity. No electrical changes; no atrophy. The patient claimed that her memory was not as good as formerly, especially for recent events. Otherwise no change was noted. Her friends stated that she was more irritable than formerly, but this was perhaps natural, as the tremor of the hand prevented her from carrying on her business as a dressmaker. The speaker said the symptoms were suggestive of a multiple sclerosis, of a cervical cord neoplasm, organic progressive hemiplegia.

Dr. L. Pierce Clark, who had seen the patient with Dr. Jelliffe at the Vanderbilt Clinic, said the case impressed him as one of multiple sclerosis, slowly progressive, and probably of the cerebral type. There were some evidences of involvement of the spinal cord.

Myotonia Congenita.—The patient, presented by Dr. Graeme M. Hammond, was a girl of sixteen, the youngest of three children. The other children were boys. One of them, aged eighteen, died suddenly a week ago of heart disease. The child's parents were cousins. There was no other case of myotonia on either side of the family for three generations; beyond that nothing was known of the ancestors.

The patient began to walk when she was ten months old. With the exception of measles in childhood she had always been well and healthy. When she was about two years old the mother noticed that the child, after sitting awhile, had great difficulty in getting up and walking. She arose slowly on account of great stiffness in the muscles and often fell. On attempting to walk she at first found it impossible to move, so rigid were her legs. Finally, she would move one leg stiffly, then the other, and began to walk with stiff, mechanical movements, like "a nursery doll." The more she walked the more limber she became, and in a few minutes walking became easy and natural, and she could even run and dance. This condition had persisted all her life.

The patient menstruated for the first time in March, 1904; then not again until September, 1904, and since that time she has not menstruated at all. Her body and arms were rather small, but the legs and thighs were very large. The knee-jerks, after sitting awhile, were present and responded quickly, but the movement was short. After walking, when the legs were quite limber, the knee-jerks were normal. Both calves measured 14¼ inches; the thighs (seven inches above the patella), 20¼ inches. The legs were 33 inches long. The muscles of the arms reacted normally to both forms of the electrical current. The legs seemed to respond normally to faradism. When galvanism was used, the muscles responded sharply and deeply to make of current, then immediately relaxed; then a second contraction ensued which was not so well marked as the first. The muscle, when it contracted, did so with a wave-like or vermicular movement. The same muscular tonus was observed after standing or lying down. The most difficult time the patient had was on attempting to rise in the morning.

Dr. G. L. Walton, of Boston, in the discussion spoke

of the liability of these cases to be taken for hysteria, on account of the apparently meaningless transition from clumsiness to agility. Continuous observation of the patient showed an unvarying adherence to fixed rules referable to disturbance of the neuromuscular mechanism, and independent of the mind. Dr. Walton also referred to a symptom that was present in two typical cases of myotonia congenita that had been under his observation, namely, the slow and clumsy ascent of stairs, followed by an active and nimble descent. This trial was then made upon Dr. Hammond's patient with the same result.

Progressive Muscular Atrophy of the Left Upper Extremities.—The patient, presented by Dr. Edward D. Fischer, was a young woman whose occupation was that of a machine worker, passing articles along under a machine, the left hand being engaged more than the right. Her family history was negative, as was also her past history, with the exception of the fact that when she was about ten years old she complained of pain in the upper arms, between the shoulder and elbow, when carrying her schoolbooks. About two years ago she began to notice some weakness in the left hand, together with some tendency to stiffness, especially when playing the piano. This was followed by wasting of the muscles, which appeared to be typical of progressive muscular atrophy. One peculiarity of the case was the extreme icy coldness of the hands, in spite of efforts to keep them warm. The electrical reactions were impaired. There were no sensory disturbances; no symptoms pointing to syringomyelia; no scoliosis. The atrophy was gradually extending up the forearm.

Dr. William M. Leszynsky said the case reminded him of one he saw recently in which there were various symptoms affecting the upper extremity, and in which the presence of a cervical rib was subsequently demonstrated. This abnormality, the speaker thought, should always be looked for with the X-ray in doubtful cases of this character, and would perhaps often explain symptoms which would otherwise be attributed to some lesion of the brachial plexus.

Dr. L. Pierce Clark said that he had recently seen two cases of early progressive muscular atrophy in which the symptoms observed in Dr. Fisher's case, that of coldness of the skin, was present. However, the symptom was confined quite distinctly to the skin distribution of the ulnar nerve in one case, and in the other the coldness occurred in the entire skin area of the first dorsal segment of the cord. He believed, in these cases at least, that progressive muscular atrophy was a lesion of the peripheral nerves as well as of the anterior horn of the cord; consequently, the sympathetic nerves were damaged, as in traumatic peripheral neuritis. Recent autopsy studies on progressive muscular atrophy would seem to confirm this pathological explanation.

Dr. William G. Spiller, of Philadelphia, said that in his experience progressive muscular atrophy was one of the rarest of all nervous diseases. He recalled one case in which the atrophy began in the extensors of the forearm, and was associated, he thought, with coldness of the hand. The explanation of the condition in that case was that the man's occupation was that of a fireman, and the atrophy began in the muscles that were most constantly used.

Nerve Anastomosis.—Dr. Alfred S. Taylor presented two cases. The first patient was a boy eight years old, who three years ago developed an attack of anterior poliomyelitis, which involved the right hand and forearm. The hand was entirely useless, but as the muscles of the shoulder and upper arm were in fairly good condition, the case was regarded as a suitable one for nerve anastomosis. Accordingly, a few days ago, the brachial plexus was exposed, and the seventh and eight cervical and first dorsal roots were divided, turned up, and inserted by lateral anastomosis into the junction of the fifth and sixth nerves. The anastomosis was effected without any tension on the nerves. The wound was then closed and the parts immobilized. The dressings were still in place, and the ultimate outcome of the operation, so far as improvement of function was concerned, was doubtful. The second patient shown by Dr. Taylor was a boy about eight years old, who in the early summer of 1903 had scarlet fever, followed by otitis media and mastoiditis, for which he was operated on July 13, 1903, at the Randall's Island Hospital. Three days later a facial palsy appeared, and rapidly progressed to complete paralyis. On October 24, 1903, 3½ months later, complete R. D. was found on electrical examination. A facio-hypoglossal anastomosis was immediately done under chloroform anesthesia. The facial nerve was found to be soft and friable and gray in appearance. But one suture could be made to hold to the hypoglossal, which in turn was under such tension that a fine suture was passed through a hypoglossal sheath to anchor the nerve to the neighboring fascia, and so prevent tension on the anastomosis, as far as possible. Primary union was obtained. There was almost complete palsy of the muscles supplied by the hypoglossal immediately after the operation. Ten weeks after the operation some difficulty of speech remained, owing to imperfect use of the tongue. Difficulty in swallowing mastication, and unilateral furring of the tongue, all of which were present for some weeks after the operation, and which were due to operative injury of the twelfth nerve, disappeared. Three months after the operation the face was far less asymmetrical than before, and the eye could be partly closed. R. D. was unchanged. At the end of eight months there was slight motion about the right side of the mouth. The improvement slowly continued, and now, fourteen months after the operation, the patient had a fair amount of control over the formerly paralyzed side of the face.

Dr. B. Sachs thought that 3½ months was rather too soon to consider an operation in a case of facial palsy, as in many of these patients improvement began after a much longer period than that had elapsed.

Dr. Hammond said that he did not think the return of power in the paralyzed muscles in the case shown by Dr. Taylor proved that the anastomosis had been successful. He recalled the case of a young lad who developed a facial palsy after a mastoid operation, and without any attempt at anastomosis, motion in the affected muscles was first noticed at the end of fifteen months, and eventually was absolutely restored.

Dr. Leszynsky said he had seen a great many cases of Bell's palsy following mastoid operations, and in his experience a favorable outcome, like that reported by Dr. Hammond, was rather unusual. He had followed some of his cases for a long time, and had failed to note any improvement.

Further Report of a Case of Hypoglossal-Facial Anastomosis.—Dr. Charles H. Frazier, of Philadelphia, said that his first opportunity to operate upon a case of facial palsy was in August, 1903, when he was called in consultation with Dr. William G. Spiller to see a patient who, five months before, in a fit of mental aberration, had shot himself with a revolver, the ball entering the external auditory meatus. This resulted in a complete facial palsy, and from the manner in which the wound was inflicted, and the point of entrance of the bullet, there was every reason to believe that the facial nerve was completely severed in its

passage through the petrous portion of the temporal bone, before it made its exit from the stylomastoid foramen. The case was one eminently suitable for operative intervention, as the nerve was irreparably damaged, and the muscles hopelessly paralyzed. The operation consisted in a hypoglossal-facial anastomosis. During the eighteen months that had elapsed since the operation, which was done in September, 1903, the patient had been examined from time to time, and there had been a slow but progressive improvement. One month after the operation there was no response to the faradic current in any of the muscles. Reaction of degeneration and polar changes were marked. Six months after the operation there was no change in the condition. Nine months after the operation there was still no response to the faradic current, while with the galvanic current there was lessened irritability. At this date there appeared for the first time a peculiar involuntary movement of the angle of the mouth. Fourteen months after the operation there was still no response to the faradic current, but a slight increase of irritability under the galvanic current. Polar change still distinct. Seventeen months after the operation voluntary movements at the angle of the mouth were for the first time observed. In addition to this, the patient was able to almost completely close the eye. All the muscles responded to the faradic current. Dr. Frazier called attention to the fact that it was not until after the fourteenth month had passed that a positive reaction to faradic stimulation was observed, with one exception, namely, the orbicularis palpebrarum, which responded slightly in the ninth month. Another interesting point was the restoration of an involuntary before a voluntary movement. In those cases in which the anastomosis had been made with a branch or the trunk of the spinal accessory nerve, associated involuntary movements were the rule rather than the exception. The speaker called attention to the order in which the muscles regained their power, beginning with the muscles of the lower part of the face, those supplied by the branches of the cervicofacial division, and extending gradually to the upper part of the face, or those supplied by the temperofacial division. One of the arguments that has been advanced against the selection of the hypoglossal nerve was the resulting atrophy of the tongue. Section of the hypoglossal nerve would be followed by paralysis of the depressors and some of the elevators of the hyoid bone, with atrophy of one-half the tongue. The speaker said that apart from the misshapen appearance of the tongue, which was not to be compared in importance with the facial deformity one was striving to relieve, he had not found any other disturbance arising from section of the hypoglossal nerve. In none of his cases was there difficulty in swallowing or talking.

Dr. Frazier said he thought no one would question the propriety of the operative treatment of facial palsy. The operation was founded upon a physiological law, proven by experimentation, and the clinical experience of a number of observers had established all that was claimed for it. The only feature in the technic of the operation worthy of discussion was the choice between the eleventh and twelfth nerves. In a previous communication on the subject (*University of Pennsylvania Medical Bulletin*, November, 1903) the speaker said he expressed a preference for the twelfth nerve, and from subsequent investigation of the results of other operators and from his own experience, he still held to the same opinion. The whole question hinged upon the importance which was attached to the associated movements. So far as he had been able to learn from the recorded cases of spinal-accessory-facial anastomosis, there had not been a single instance in which a voluntary effort to raise the shoulder had not been attended with contraction of the facial muscles, and these so-called associated movements constituted a very serious objection to the selection of the eleventh nerve. As to the method of making the anastomosis, theoretically, an end-to-end anastomosis should secure the best results.

Some Newer Ideas on Nerve Anastomosis.—By Drs. William G. Spiller and Charles H. Frazier. (Read by Dr. Spiller.) The reader first raised the query whether it was possible to benefit in any way by surgical means the patient who was afflicted with an incomplete hemiplegia? Where the hemiplegia was complete or nearly so, one could not hope to accomplish anything by any surgical procedure. There were, however, many cases in which there was a partial return of power in the paralyzed limbs, and experience showed that usually the restoration of motion was greater in the flexors in the upper limb and greater in the extensors in the lower limb, excepting those of the toes. The restoration of the power of the flexors or the fingers and hand might be of little or no value unless there was at least a partial return of power in the antagonistic muscles, although the return need not be so great in the extensors as in the flexors. The question now arose whether impulses would pass from the brain over the central motor tracts to the anastomosed fibers of the peripheral ends of flexor and extensor nerves in such a way that useful return of function might be expected? Dr. Spiller thought the probabilty was that such a restoration, in part at least, would occur. It was true that movements and not muscles were represented in the brain cortex, but it had been demonstrated that when the lesion was in the peripheral nerves and anastomosis of nerves had been performed, a new form of associated movements might be learned by the brain. In order to study the conditions of paralysis existing in hemiplegia, Dr. Spiller examined 26 cases in which the paralysis dated from early childhood. The cases in which the hand had regained partial power were more numerous than those in which the foot had regained partial power. In 11 cases out of the 26 the flexors of the hand were so much stronger than the extensors that a nerve anastomosis might properly have been attempted, but only four cases offered much hope for improvement from an operation on the foot. From his investigations the writer concluded that there was probably a field for surgical intervention in certain cases of cerebral hemiplegia, but the cases must be carefully selected and thoroughly studied. Whether any benefit by nerve anastomosis would result to the hemiplegic individual or not, experience alone would decide. The subject, however, was one deserving attention.

Dr. Spiller said that for several years he had been trying to devise some method for the treatment of athetosis, which was one of the most distressing forms of involuntary movement, and the failure to control it in any degree was a reproach to medicine. Much study had been given to the causation of these movements, but our knowledge regarding the condition was very insignificant. In cases in which athetosis existed there must be an irritation of the motor system somewhere. We could not hope to remove the irritation in the brain, nor to cut the central motor fibers. The question arose could anything be accomplished in these cases by operation upon the peripheral nerves? Theoretically, the proper procedure would be to cut the posterior roots of the affected limbs, the number to be cut depending on the condition in each case. This was always a serious operation, and the results had at times been unexpectedly grave. Division of one or more of the motor nerves of the affected limb, with immediate suture of the divided ends, might

lessen the involuntary activity and weaken the muscles slightly. In athetosis, the flexors of the hand and fingers were often unusually strong, and where this was the case, the union of a peripheral end of a flexor nerve with the central end of an extensor nerve, and *vice versa*, might restore the proper relations of voluntary power, and lessen or abolish the involuntary movements.

Dr. Charles H. Frazier said that the adaptation of operations known as nerve anastomosis or implantations to the treatment of cerebral palsies, as proposed by Dr. Spiller, opened up a field in neurological surgery which seemed to be full of promise. His first clinical experience in this line dealt with a woman, sixty-five years old, who had an apoplectic attack five years ago. When the operation was performed, on July 28, 1904, she was hemiplegic; there was marked atrophy of the muscles of the hand, arm and forearm, but the paralysis was so much more marked in the extensor than in the flexor group of muscles that she could only partially, and then with great difficulty, extend the proximal phalanges. An incision was made along the inner border of the coracobrachialis, exposing the brachial vessels and the main nerve trunks. The median and musculospiral nerves were partially isolated, and a flap composed of one-half the median nerve was implanted into the musculospiral, and sutured in such a way that the nerve fibers of the median were imbedded into those of the musculospiral. The results of the operation up to the present time had not been very positive, although it was still possible that greater improvement would take place as time went on. It was too early to predict the final result. There were innumerable details in the method of executing these operations, which could only be determined by thorough and repeated experimental investigations and clinical observations. The experimental work was being carried out on dogs. As compared with tendon transplantation, the only other surgical measure which could be applied for the treatment of these palsied conditions with uneven distribution of power in those muscles that opposed one another, the speaker said he could not but feel that in the transference of a proportion of nerve force, in an amount still to be determined, from one group of stronger muscles to the weaker, we had at our disposal a means of control which might be productive of better results.

Contribution to the Pathology and Surgical Treatment of Chronic Facial Palsy.—By Drs. L. Pierce Clark, Alfred S. Taylor and Thomas P. Prout. (Read by Dr. Clark.) The reader said it was not known why the facial nerve suffered from palsy with such frequency, nor was there as yet adequate information regarding the nerve elements or the part of the nerve that was primarily involved. The frequency of Bell's palsy was probably due to anatomic causes. The nerve had a tortuous and exposed course through the Fallopian canal, and the extension of inflammation from the middle ear, or the effect of cold acting through this channel upon the facial nerve was easily understood. Facial palsy, both in man and animals, was relatively infrequent when the face and head were properly protected. It seemed reasonable to suppose also that a certain number of individuals suffered from a congenital narrowing of the foraminal exit of the nerve. There were good reasons to believe that the initial changes of this condition took place in the perineural sheath, although the exact pathogenesis of Bell's palsy was still uncertain, because of the meagerness of the material at hand for study. In two cases of typical, uncomplicated Bell's palsy coming under the authors' observation and treated by faciohypoglossal anastomosis, a section of the affected nerve was excised, and submitted to Dr. Prout for microscopical study. In the first of these cases, the paralysis had existed for three and one-half months; in the second for twelve years. Dr. Prout reported that in the first case the nerve was in a condition of incomplete degeneration. There was still a few nerve fibers undegenerated, or in which the myelin sheath was only partially broken up, and these stood out in marked contrast to the degenerated nerve fibers in which they were imbedded, which latter showed here and there fragments of myelin. There was furthermore a marked invasion of the tissues with leucocytes, and the cells of the neurilemma were shrunken and shriveled in some portions; in others the nuclei of the neurilemma cells were large and well defined. The perineural sheath showed marked infiltration with leucocytes. In the second case, which was of a chronic character, the nerve fibers were completely degenerated, showing but occasional granules belonging to the myelin sheath. There were no undegenerated fibers. The tissues belonging to the perineural sheath showed the most decided changes. There was marked proliferation of the cells belonging to the perineural sheath, with infiltration of the tissues, and clumps of cells scattered here and there throughout the section. This tissue exceeded the proper nerve tissue of the section by about two to one. The neurilemma cells were markedly shrunken and shriveled. The painlessness of Bell's palsy, even to external pressure on the nerve trunk and the paralyzed muscles, argued for a simple degenerative neuritis in the peripheral portion, and not a parenchymatous affection. There was good reason to believe that Bell's palsy was primarily a Fallopian neuritis, which through strangulation of the nerve strands induced a low grade of secondary degenerative neuritis in the periphery.

Dr. Alfred S. Taylor said that his technic faciohypoglossal nerve anastomosis was described in detail in a paper upon the surgical treatment of facial palsy, by Dr. L. Pierce Clark and himself, which appeared in the *N. Y. Medical Record*, February 27, 1904. The operation involved the following steps: (1) The incision; (2) isolation and section of the facial nerve; (3) exposure of the hypoglossal nerve; (4) the implantation; (5) the closure of the wound; (6) the after-treatment. The incision involving the skin and subcutaneous tissue passed along the anterior margin of the mastoid process and the sternomastoid muscle for about 5 cm., starting at the level of the external meatus. When the facial nerve was identified it was enucleated from the surrounding connective tissue, and divided as far up in the stylomastoid forearm as a narrow-bladed knife would allow. Usually one could get from one to two cm. of free nerve trunk.

The isolation of the hypoglossal nerve was the most difficult step, and involved whatever danger there was in the operation. Once identified, it was dissected upward until the stump of the facial nerve could be approximated to it without tension. This had to be done with care, so as not to divide the minute branches from the pneumogastric, the upper ganglion of the sympathetic, and the two upper cervical branches, all of which were in the immediate neighborhood. While the nerve was supported on a blunt hook, a slit one-half cm. long was made well into the nerve trunk. A fine curved needle was threaded to one of each pair of long silk ends previously left tied to the stump of the facial nerve. One suture was passed through the inner and the other through the outer margin of the wound in the hypoglossal nerve. When the sutures were tied, the wedge-shaped end of the facial was snugly held in the cleft of the hypoglossal nerve, and was usually best turned slightly upward by means of a probe, a procedure suggested by Dr. Weir. These sutures should not be tied too tightly, lest they injure the fibers of the hypoglossal

nerve, a few of which were almost surely included in their grasp. To prevent the ingrowth of connective tissue elements, Cargile membrane was wrapped about the nerve junction. The hypoglossal was then dropped back to its normal position, and there was usually no tension on the tissues. The after-treatment was a most important feature in obtaining the desired result. Massage, electricity, and later, coordinate muscular movements should be persistently and systematically resorted to for months. As to the time when the operation should be done, Dr. Taylor said that that must be left to the neurologist. The muscles should be kept in good condition. It was known that there was a return of motor power in some instances even after many years had elapsed. In connection with his remarks, Dr. Taylor reported six cases of hypoglossal nerve anastomosis, and showed a number of new instruments that he had designed for the purpose of rendering the operation easier technically, and of avoiding distressing sequelæ. These instruments were illustrated and described in detail by Dr. Taylor in the *N. Y. Medical Record*, March 4, 1905, page 359.

Dr. Charles A. Elsberg reported the following case of facial-spinal accessory anastomosis. This report, he said, must be regarded as preliminary, as the time that had elapsed since the operation was not long enough for a complete report: C. F., female, thirty years old, was referred to Dr. Elsberg in May, 1904, by Dr. H. Heiman. When the patient was six months old she had an attack of convulsions, followed by paralysis of the left side of the face, with loss of smell and hearing on the same side. In spite of treatment, the paralysis did not improve. Massage, electricity, injections of strychnine, etc., were continued for many years without any improvement. When Dr. Elsberg first saw the patient she presented the characteristic features of an old facial palsy. Dr. B. Sachs was asked to see the case in consultation, and found that the left facial paralysis was almost complete. There was a slight faradic response to the lowermost branch of the nerve, and the galvanic response was diminished, but the polar formula was not altered in the orbicularis oris, or in the nerve itself. There was partial lagophthalmus. Examination of the ear and nose was negative. After careful consideration, it was decided that in spite of the long duration of the paralysis, an operation might be attended by success. This was done on May 10, 1904, about 9½ months ago. The facial nerve was anastomosed with the spinal accessory by slitting both nerves, and joining the branch of the eleventh nerve to the trapezius muscle to the separated portion of the facial with fine silk sutures. Thus neither the eleventh or twelfth nerves were entirely divided. The wound healed by primary union, and the patient was discharged from the hospital in two weeks. Briefly, the after-course was as follows: There was complete paralysis of the trapezius and a partial paralysis of the left sternomastoid after the operation. This disappeared in about six months. Eighteen days after the operation, the patient declared she had a continual feeling of tenseness in the left side of the face. On the twenty-sixth day she declared that she could close her eyes better, and that the left eye did not tear any more. On the ninety-sixth day the patient wrote from the country that she had noticed that she was able to move the left corner of her mouth a little, and that she could close the left eye better.

On the one hundred and twenty-second day, the orbicularis oris contracted strongly to the faradic current; the muscles of the lower lip slightly to galvanism. The same muscles contracted when the spinal accessory was stimulated. Associated movements of the left shoulder and the left side of the face could never be obtained. On the one hundred and sixty-sixth day, the patient was able to draw the left angle of her mouth slightly upward and outward, and could close her left eye almost completely. From that time up to the present there had been a slow but a steady improvement, additional muscles beginning to contract to galvanism and faradism every few weeks. The case was unusual on account of the duration of the paralysis at the time of operation (29½ years), and because of the absence of associated shoulder movements.

Dr. B. Sachs said that in deciding the question whether to anastomose the facial nerve with the hypoglossal or the spinal accessory, his preference would be in favor of the latter procedure, as it involved a nerve of lesser dignity than the former. The hypoglossal was a nerve of great importance, and if the same result could be obtained by substituting the spinal accessory, he would certainly favor it. The entire question of nerve transplantation was an extremely important one, and the physiological aspects of the problem were still unsolved. The speaker said he sincerely hoped that the procedure would prove beneficial in hemiplegia, but until further experimental work had been done, the aspect of the subject could not be intelligently discussed. In facial palsy several cases had been reported where the nerve anastomosis had been done three and a half or four months after the onset of the disability. This he thought was too early, as many cases were on record where improvement began much later without treatment or in spite of treatment. A year should be allowed to elapse before operation.

Dr. Leszynsky said he was interested in the remark made by Dr. Frazier that the power would be restored with the return of faradic irritability. The speaker said he had seen patients with facial paralysis of long standing in whom the faradic irritability had returned, although there was no return of motility. These were exceptional cases, but they had been observed, so that the mere return of faradic irritability did not necessarily indicate that there would be a return of motility. The speaker said he agreed with Dr. Sachs that three or four months was too soon to operate on these cases.

Dr. Walton said that Dr. Spiller's proposition should have the benefit of trial. In disease or injury of the lower neurons, every gain in motion, however slight, was gladly welcomed, and if hemiplegics could be helped by nerve transplantation there was the added hope of lessening the cerebral spasm to which Dr. Spiller had referred, and which in one case coming under the speaker's observation was so troublesome that the arm was amputated at the shoulder at the request of the patient. The brilliant result in Dr. Elsberg's case demonstrated the possibility of transplanting the spinal accessory without causing associated movements, which seemed to be the chief drawback to choosing this nerve in preference to the hypoglossal.

Dr. Spiller, in closing, said the statement made by Dr. Taylor that in late cases, where the paralysis had existed for a long time, the nerve may have disappeared was correct. The speaker recalled such a case where the facial nerve could not be found at all. In facial palsy one of the earliest evidences of a return of power that could be elicited was a slight deepening of the nasolabial fold when the eyes were closed tightly.

Dr. Frazier, in closing, said that in his cases of nerve anastomosis the hypoglossal had been selected in preference to the spinal accessory purely on theoretical grounds and a study of former operations, and also because associated movements had followed the selection of the spinal accessory. The case reported by Dr. Elsberg was the first one in which these associated movements had not occurred.

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ORIGINAL ARTICLES.

MOSQUITOES OF FLORIDA.

BY HIRAM BYRD, M.D.,

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To the casual observer all mosquitoes look alike, but a more intimate acquaintance reveals some very striking differences both in structure and habits. Some are beautifully marked with white or yellow stripes and bands, some with purple, while some are of more somber hues. Some have long slender legs, others short and stout. The legs of some are smooth, while others are beset with erect scales. Some have toothed tarsal claws, while others are without teeth. Some do not bite at all, some bite chiefly at night, some chiefly in the day, whereas some bite day and night. Some pass the winter in the adult and some in the egg stage. Some deposit their eggs on the water, and others deposit them on the grass or mud, where water is expected to come after rain or high tides. Some lay their eggs singly, others join them together into little batches, or "boats." Some breed only in fresh water, others only in salt. Some prefer clean water, others filthy. Some are migratory, others are not. Some transmit disease, while others do not. Of those that do, one kind transmits one disease and another another. But although there are many differences, there are also many likenesses, and all mosquitoes agreeing in certain important particulars are grouped together as a *genus*. While all mosquitoes of the same genus are alike in most respects, there may be some minor differences. The mosquitoes having the same minor differences are grouped together as a *species*. To illustrate: All malaria carriers have long palpi in both the male and female, and their larvæ have very short respiratory siphons. They constitute the genus *Anopheles*. But all *Anopheles* are not exactly alike. One kind has three black spots on the scales of the last vein, also white bands across the palpi. This is the species *crucians*, and is spoken of as the *Anopheles crucians*. Another of the *Anopheles* has white hind feet. He is known as the *Anopheles argyritarsis*.

It is an unwritten law among naturalists that the first who finds or describes a species names it. Frequently two or more naturalists in different parts of the world describe the same species, each one naming it and each giving it a different name, and later it is found that they both mean the same thing. When this occurs, the species is known by the name given it first and the other names are used as synonyms. To illustrate: A certain mosquito of the genus *Anopheles* was described by Meigen and called *Anopheles maculipennis*. The same mosquito was described by Say and called *Anopheles quadrimaculatus*. It is now known as *Anopheles maculipennis*, Meig., the author's name being added to avoid confusion.

Just how many species there are in the world no one can say, for the reason that new species are being continually discovered, and even among those already known new differences are being found which sometimes transfers a group to another species, or even to another genus, *e.g.*, the *Stegomyia fasciatus* was long thought to belong to genus *Culex*. Lieut.-Col. Geo. M. Giles wrote three years ago, "We have at least 300 (species) whose validity is hardly likely to be questioned. Moreover, as there remain large areas from which no collections have been received, a total of 500 species as the actual total is certainly an underestimate. And I should not be surprised were it found to rival that of butterflies." At the same time he gave a list from North America and Canada, based upon Theobald's Monograph, but with some additions. This list contained 36 species. New Jersey alone is now known to have that many. Even Florida has some 22 species, and how many yet undiscovered only future effort can determine.

The number of genera, into which mosquitoes have been grouped, is about 25. We have found in our State representatives of eight of these. The *Culex* includes about as many species as all the other genera together, more than 160 already being known. And if any genus may be regarded as the type from which others have diverged, the *Culex* has a very strong claim for that distinction. Selecting, then, the *Culex pipiens* as type of this typical genus, the life cycle is briefly as follows:

Mosquitoes pass through four stages of development—egg, larva, pupa, imago, or full-grown mosquito. However, the eggs may be laid, they hatch only in water; the wriggler and pupa pass their entire existence in water, leaving it only when the imago emerges from the pupa skin. From this it will appear that mosquitoes cannot breed except in water.

Though the wriggler lives in water, he is a true air-breather. Respiration is carried on by means of a respiratory siphon situated on the dorsal aspect of the last abdominal segment—a breathing tube near the end of his "tail." When at rest he floats at the surface, head downward, his breathing tube thrust out of the water. If disturbed, he quickly darts downward, but soon returns to breathe again.

Frequently he may be seen feeding at the surface, and actively turning his head and body this

way and that, but always with his breathing tube thrust into the air. At other times he goes down to feed, and may be seen mouthing over dirt, leaves, grass, or whatever happens to be in the water. His food consists of diatoms, desmids, spores of minute vegetable organisms, and minute animal life. He is a very voracious eater, and when food is scarce he will, in some species, eat other wrigglers.

He grows fast or slow, according to the abundance of food at his command, the temperature of the water he lives in, etc. In about a week, under ordinary conditions, he is grown, having moulted several times in the interim. He is now ready to change his skin once more, and out comes the pupa.

The pupa looks something like the mosquito with his head, wings, thorax, and legs all in a bag. With the change of state his habits also change. He doesn't grow any more, neither does he eat. His breathing is changed so that now it is through two little trumpet-shaped tubes that grow out from the thorax. His body seems to have become lighter. He quietly floats at the surface, except when disturbed. At such times he darts downward, but it is only by effort that he remains below the surface.

After remaining in the pupa stage from sixteen hours to three or four days, he bursts his skin on the back of the thorax and out comes the full-grown mosquito. During the hatching, which takes place in the water, the pupa skin serves as a boat to keep the emerging mosquito from drowning.

If he pass this milestone safely, he unfolds his legs, rests a bit, spreads his wings and flies away.

As this is the reproducing stage, the first thing is the marriage flight, which takes place usually on a still morning or evening. Some species mate in the middle of the day. The *Stegomyia fasciatus* frequently does.

After mating, as a rule, the males do not live long—say, two or three days (?)— and do not necessarily take food. They rarely bite, but may be seen occasionally sipping sugar, molasses, or fruit.

The females, on the contrary, after mating, go in quest of warm blood. It is believed they seek blood for the purpose of maturing their eggs, but it is well known that mosquitoes can, and do, reproduce without tasting blood. Indeed, it is doubtful whether one in a million ever enjoys that luxury. It seems, too, that in some species at least, once the female is fertilized she is always fertile and capable of producing a batch of eggs every time she gets a fill of blood. (See Thompson-Yates Laboratory Reports.)

Culices in Florida.—There are 11 species of *Culex* now known in the State. Nine of these breed only in fresh water, whereas the other two breed in the salt marshes. Of the fresh-water breeders the most common is the *Culex pipiens* or "rain barrel" mosquito. This is the most universally distributed species we have. I have collected mosquitoes at nearly a hundred points in the State, and this is the only species that I have found at absolutely every place.

Among our far northern species, Mr. Howard mentions the *Culex impiger* as abounding in Alaska. It is also a native of Florida. This indicates under what varied conditions some species may thrive. The *Culex scholasticus* is interesting by reason of the fact that the only specimen so far found in America is one that I captured on the Santa Fe River, in Alachua County. The *Culex perturbans* is a not uncommon species, which once seen is easily recognized, and whose larvæ are as yet unknown. I once produced a batch of eggs by confining a female in a breeding jar, but none of them hatched. The *Culex serratus, Culex triseriatus*, and *Culex confirmatus* I have found only in swamps, and very few there. The *Culex consobrinus* and *Culex nanus* are among the less important species.

The *Culex tæniorhyncus* and *Culex solicitans* are our two salt-marsh breeders. They differ very materially from the fresh-water breeders, and deserve special mention. They are very much alike, both in their markings and breeding habits. The *solicitans* is somewhat the larger and is marked with a purer white. The predominating species here is the *tæniorhyncus*, but in New Jersey it is the *solicitans*. This would seem to indicate that the latter is a more northern species. The former, by reason of its abundance and ferocity, is a great pest along the East Coast. My own observations on this species have been confined to that territory, and I have no data bearing upon its distribution elsewhere in the State.

Dr. John B. Smith, of New Jersey, has made a very careful study of these mosquitoes, and his researches have revealed some curious and interesting facts. In their breeding habits they differ entirely from the other common species of *Culex*. As before stated, they breed only in the salt marshes. They deposit their eggs, not on the water, but on the mud where water is expected to come after heavy rains or high tides. The eggs lie there and dry out till the marsh becomes flooded. When this occurs they hatch, but not all of them. Some dry out a second and third and even a fourth time, and, indeed, some of them pass through the winter to hatch the following spring. This is Nature's method of perpetuating the species. For if they all hatched the first time the marsh is flooded, and if then the water should dry up before they have time to come to maturity, they would be exterminated.

After hatching they grow rapidly, and in a week or ten days have become imagoes. Here is the curious feature: Some of them are males and some are females, and *some are sexually immature females*. For the present we will leave this third class—these neuters, so to speak—and follow the story of the males and females.

Soon after hatching they mate and anon are ready to deposit eggs again. By this time also the marsh has dried up more or less and is ready to receive them. They are deposited as before, and dry out as before, and the story continues. From this it is apparent that a continuous dry season would produce few mosquitoes. So also would a continuous wet season. But alternating wet and dry would produce the greatest abundance. It is apparent also that they come in crops, and that these crops appear a week to ten days after heavy rains or high tides. It is also clear that if the water that floods the marsh should be dried up in less than a week or ten days—before the wrigglers could reach maturity, —they would perish, and this not infrequently happens, as a result of insufficient rain—enough falling to hatch them, but not enough to tide them over the wingless stage.

We will now turn to the neuters. As before stated, they are sexually immature females. The breeding instinct is not lost, but transformed into an instinct to migrate. So that soon after hatching they rise up from the marshes in countless millions, and fly, or, rather, drift, away with the wind. If the wind is landward, they fly inland, but if seaward they take that direction. Mr. Smith has found that they sometimes migrate as far as twenty miles, so that habitations that near their breeding places will be troubled with them more or less at times.

From a sanitary point of view the genus *Anopheles* stands second to none. They are the malaria carriers. There are about fifty species known. Five of these have been found in Florida. The *Anopheles crucians* is our most common species, but I have not found it by any means abundant. In no instance have I captured more than a dozen specimens in a single day. I have found the *Anopheles maculipennis* at only one point—Kissimmee. The *Anopheles argyritarsis* has lately been found in Key West, but Dr. Porter thinks it was imported there. The late Dr. Murray made exhaustive searches for specimens of *Anopheles*, even offering ten dollars for them, but failed to secure any. As the *argyritarsis* is indigenous to Cuba, Dr. Porter's view seems not at all improbable. Dr. Andrade informs me that he has found the *Anopheles punctipennis* and *Anopheles pseudo-punctipennis* in Jacksonville, but unfortunately no specimens have been preserved.

In their breeding habits, the *Anopheles* differ from the *Culex pipiens* in laying their eggs singly, instead of joining them together into boats. Their wrigglers also, when at rest, float parallel to the surface. They do not fly very far, avoid sunlight, and seldom bite, except at night. They pass the winter as adults, hibernating in the colder latitudes, but they remain active all the winter here. Even their breeding, while it is retarded during our coldest weather, is seldom if ever arrested. And this explains the prevalence of malaria in winter.

The genus *Stegomyia* includes something over twenty species, but only the *fasciatus* is accused of transmitting yellow fever. And this is the only representative of the genus so far found in our State. He is the best known and most widely distributed species of *Culicidæ*. He has been described and redescribed and named and renamed until he has been christened no fewer than seventeen times. For a long time he was thought to belong to the *Culices*, and even now there is some dissatisfaction about his classification. This comes from the fact that he is the only species of his genus that transmits yellow fever —a difference which some think should be generic instead of specific.

The *Stegomyia fasciatus* is an inhabitant of tropical and subtropical countries. His limits are pretty accurately marked by the isotherm which forms the northern boundary of the lower austral life zone. This isotherm is determined by Dr. C. Hart Merriam as follows: At any given point, as Nashville, take the mean daily temperature above 6° C. or 43° F. Add them together for an entire year. If the sum amounts to 10,000 C. or 18,000 F., it marks the isotherm in question. The same rule applies in the southern hemisphere. At all points between these two isotherms, where it is not too dry, the climatic conditions under which the *Stegomyia fasciatus* thrives are fulfilled. The whole State of Florida is included within the humid division of this territory, which makes the ideal breeding place of this species. And, as a matter of fact, it is widely distributed throughout the State, being second only to the *Culex pipiens*.

The *Janthinosoma* is represented in Florida by a single species, the *musica*. This is a handsome wretch, rather above average size, with purple abdomen and legs and white hind feet. He is found in swamps and along water courses, frequently in great abundance. He it is that worries fly fishermen probably more than any other species.

The *Psorophora* is represented by the *ciliata*, our well-known "gallinipper." This is the largest species known. He is mostly of woodland habits, but occasionally ventures even to the heart of our smaller towns.

The *Melanoconion atratus* is a small insignificant species which I captured on the Santa Fe River. So far as I have been able to learn he has not been found elsewhere in America.

The *Wyeomyia Smithii* and *Megarhinus rutilus* are our two others, which bring the total number of species now known in our State up to 22.

Every one knows now that the mosquitoes of the genus *Anopheles* are responsible for the transmission of malaria. But just how it is done is not so generally understood. Briefly, the process is as follows: The hematozoon of malaria develops in the red blood cell, feeding on its contents and growing, just as any other organism would feed and grow. If you can

imagine a worm in the heart of an apple, eating and growing till the apple is only a shell and the worm fills it up, you will have a similar process. If you can imagine the worm breaking into ten to thirty pieces, and each piece entering another apple, and living and feeding and growing as the first one did, you will still be following the process. When the hematozoon grows till it fills the corpusule—when it is grown—it breaks into a variable number of pieces or segments, and the process of breaking out of the old shell and getting into the new is called *sporulation*. It is at this juncture that the patient has the chill. In tertian fever this sporulation takes place every forty-eight hours. In another two days they are grown and sporulate again, and another chill, and so on. From this it will be seen that if a patient has two crops maturing on different days, he will have a chill every day—a double infection.

It will be noticed that the above method of reproduction is without sex. Each individual germ, independent of every other, produces ten to thirty of its kind by breaking into so many segments. This asexual method of reproduction has for its object the increasing of the number of individuals. It prevails to a greater or less degree in all the lower animals and plants. But the malarial parasite, in common with many other organisms, has another means of reproducing—a sexual method. It is this sexual method that continues the story.

When the hematozoon growing in the red blood cell reaches maturity and sporulates, as before said, it breaks into ten to thirty segments. Now these segments are of three kinds, namely, male, female, and the asexual forms that go on reproducing, in the blood. As we have already seen what the asexual forms do, it now remains to see what becomes of the sexual forms —male and female. When sporulation takes place and all three forms are set free in the plasma of the blood, the sexual forms, like the asexual, proceed to enter other blood cells and feed and grow. But they do not sporulate. Their function is to disseminate their kind, to reach other hosts. And as they have adopted the mosquito as their intermediate host, they lie dormant till taken into the mosquito's stomach. Now when an *Anopheles* bites an individual thus infected with malaria, he takes into his stomach a great number of red blood cells. Some of these contain no germs at all, some contain the asexual, and some the sexual, both male and female. The blood cells are digested. So also the asexual germs. Not so the sexual. Instead they proceed to unite, the males with the females —to mate, if you please. In this act of conjugating the male and female elements fuse together, making a new body. This body now penetrates the stomach wall of the mosquito and here becomes embedded, forming a minute tubercle. By and by this tubercle breaks down, setting free in the body cavity of the mosquito a host of minute organisms, called sporozoites. These get into the salivary glands of the insect, and when the mosquito bites another individual some of them are injected and proceed to enter red blood cells and grow and reproduce, and the story is repeated.

As before said, it is well known that mosquitoes transmit malaria and yellow fever. It is equally well known that they transmit the *Filaria sanguinis hominis*. They are also accused of transmitting the *trypanosoma* and the specific cause of dengue. Among the lower animals they transmit a disease of swallows similar to malaria. It is thought also that they transmit a certain dog disease of the *hematozoon* class. And it is altogether probable that diseases among cold-blooded animals may prove to be transmitted in the same way. There is an infinity of investigating yet to be done along these lines.

Some species, as our salt-marsh breeders, pass the winter in the egg stage, the adults dying when the weather gets cold, but leaving a bountiful supply of eggs deposited in the marshes ready to hatch out when the spring rains come. Others, as the *Anopheles*, pass the winter as adults. In the colder latitudes, with the advent of winter, the gravid females seek shelter in closets, cellars, barns, and other protected places, and go to sleep. When the warmth of spring returns they wake up and set about repeopling the mosquito world. But I am convinced that the commoner species rarely, if ever, hibernate in this State—especially the southern part. During the winter just past, I found them out, not only through the winter months, but during the coldest of the weather. On two successive nights the thermometer went to 20° F., and on the intervening day my wife captured a large active specimen of *Anopheles crucians*. The thermometer then stood about 35° F. During the same cold spell I captured several other specimens of *Anopheles*, as well as *Stegomyia fasciata* and *Culex pipiens*. It is true they were not so abundant as when the weather was warm, nor were they so active, and if the temperature had remained low for any length of time they would, in all probability, have gone into hibernation. I also found active *Culex* wrigglers in January, but was not privileged to see them hatch. But on February 13 I found grown *Culex* wrigglers which were collected and hatched in breeding jars.

It has been definitely settled by Dr. John B. Smith, of New Jersey, that our two salt-marsh breeders are migratory, that they will fly 20 miles or less from their breeding places. Whether there are other species that migrate is yet to be determined, but it is certain that most of our commoner species are of very local habits, seldom flying more than a few hundred feet or yards at most from where they hatch. It is very important therefore for exterminating purposes to determine just what species we have to

contend with and how far they fly, for it is evident that in order to clear any given community of mosquitoes they must not be allowed to breed within a radius equal to the distance they may fly.

How long do mosquitoes live is a question often asked. It is not easy to answer, for the reason that in confinement they may not live their allotted time. And the span of life is probably greater in some species than others. The *Stegomyia fasciatus* has been kept alive for five months. So has the *Culex*. Mr. Smith thinks that the average life of our commoner *Culices* is some three or four weeks, and that *Anopheles* live somewhat longer. It is certain that they live long enough to reproduce their offspring, and that they breed fast enough to maintain the abundance, and that they bite often enough to transmit disease. And these are, after all, the vital facts.

Mosquitoes, like most other insects, and, indeed, most of the lower organisms, reproduce very rapidly and would, if unchecked, overrun the earth in a very little while. But nature provides checks and counter-checks for such rapid multiplication. Whether there are any creatures that prey upon the eggs or not, it is certain that a large per cent. of them never hatch. In the larval or wriggler stage they have many enemies. Minnows eat them, the larvæ of dragonflies and beetles eat them, disease attacks them, fungi get on them and kill them; they die for lack of food, they sometimes eat one another, they get entangled in threads of spirogyra or under floating leaves and drown. The water dries up before they are grown and millions of them perish in this way. Finally, when they are ready to emerge from the pupa, the cast-off skin serving as a boat for the casting to take place in, frequently capsizes and the mosquito dies at the very threshold of existence. And those that do hatch successfully now have to take their chances among dragon flies, bats, lizards, toads, night hawks, and a host of other enemies.

Suppose that some progressive energetic town desires to get rid of mosquitoes, how will it go about it? Manifestly, the first thing is to determine what the prevailing species are, and where they breed. The State Board of Health may lend assistance here. This determined, it remains to control these breeding places. By far the greater number will be found to be neglected vessels of water on private premises, such as tanks, cisterns, rain-barrels, watering troughs, sagging gutters; even the water pitcher in the spare room may breed mosquitoes enough to supply the whole household. Let the council make it the duty of every citizen to keep his own premises clear of wrigglers, imposing, if necessary, a small fine for neglect of this duty, in order to make it effective.

Troughs and pitchers and vessels that can be emptied once a week need that only. Cisterns and tanks can be screened so that the mosquitoes can't get to them to lay their eggs. Or they can be oiled.

In addition to this, let every household have its artificial breeding place—a pail of water set in some shady place in the yard. Mosquitoes will come to it to deposit their eggs, instead of going to some place where they would be difficult to find or get at. These traps will catch most of the eggs to be deposited about the place. And as they require about ten days to come to maturity, the pails need only be emptied once a week and refilled. But they serve a better purpose still than merely an artificial breeding place. They will be a most potent factor in education. They are so many aquaria where every man, woman, and child will acquire a practical knowledge of the breeding habits of mosquitoes—will come to know the eggs, the larvæ, pupæ, the time they require to hatch, the wherefore of exterminating them, and then, instead of having a few enthusiastic workers, the whole town will become enlisted and the mosquito is doomed.

Breeding places around town are to be controlled by the city authorities. Some places can be filled up. Others can be ditched. Fish can be introduced into some, or duckweed, and so on. The ingenious American will find ways and means if only he enlists in earnest.

To control the salt-march breeders in a State problem and cannot be discussed here. Nor does it concern places without the range of their migration—say, 20 miles or more from the coast. Nor need it deter any place from waging war against its local mosquitoes, thereby getting rid of disease carriers.

In conclusion, permit me to say that the time is coming, and not far distant, when the toleration of mosquitoes will be a municipal crime. That they can be controlled is no longer a question, but a demonstrated fact, and it now remains with us to decide whether we will be leaders or followers in this beneficent crusade.

Addendum: I have since found the *Culex solicitans* breeding in a fresh water gully fifty miles from the coast. This may be the *solicitans* studied by Mr. Smith in New Jersey, or it may be a closely allied species. The latter seems more probable.

SUICIDE; ITS CONSIDERATION FROM A MEDICAL STANDPOINT.

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FROM time to time the public mind is shocked by the reading of sensational accounts in the daily newspapers of persons who have committed suicide. Not only do such accounts have a baneful effect upon society at large, but they also have an injurious influence upon the minds of certain individuals in the community who are mentally unstable, and also upon those who had contemplated, or who had previously made at-

tempts to commit the act of self-destruction. In the former class of cases the act may be performed as the result of suggestion, accompanied by a sudden uncontrollable impulse to suicide; in the latter the newspaper account encourages the patient to make a renewed attempt to destroy himself with the hope that it will result successfully.

The most recent statistics show conclusively that suicide is steadily on the increase in this country. The fact is one of great importance and should not be looked upon with indifference, but rather with grave apprehension. As one of the functions of the medical profession is to safeguard the public health and welfare, it should inaugurate a thorough and scientific investigation of the causes and prevention of suicide with a view to devising adequate means of checking this great social scourge.

The *Journal of the American Medical Association* (July 30, 1904) referring editorially to the matter, states that statistics show that suicide is somewhat more than twice as frequent as it was ten years ago. During this period poison has taken the place of shooting in being the most frequent mode adopted for self-destruction. Carbolic acid is the poison most frequently used, as it can be readily procured. It is said that five out of every six persons committing suicide use this means of ending their lives. In 1891 the statistics showed that 3,531 persons had committed suicide, whereas in 1903 the number of suicides had increased to about 8,600. In the last thirteen years the total number of suicides was shown to be 77,617. The ratio between male and female suicides has become gradually less in recent years, so that in the last three years it stood at 2½ to 1. The lessening of the ratio is thought to be due to the fact that women nowadays lead a far more arduous life than formerly, besides being brought into fierce competition with men in the struggle for their daily bread.

Prof. Baily, writing in the *Yale Review* for May, 1903, made some interesting observations on the subject of suicide. He shows that of those who take their own lives, the married are slightly in excess of the single. He also states that of the different modes of suicide employed, shooting seems to be the most common in the country, and jumping from heights, poisoning, or asphyxiation by gas the most common in cities. As regards the sexes, men seem to favor shooting, while women prefer the use of poison. As regards the causes of suicide, he found the most common to be despondency, business losses, ill health, insanity, disappointment in love, and alcoholism. In general, women commit suicide at an earlier age than men.

It would appear from the consideration of the above facts that the increase of suicide is due, in great measure, to the modern strenuous life, and to frequently recurring social and political agitations.

In order that the study of the subject may be simplified and considered in a concise form, I will discuss it under three separate heads, to wit: (1) Suicide which occurs as the result of an imperative conception; (2) suicide of the sane; (3) suicide of the insane.

1. An imperative conception is a morbid suggestion or idea which is produced by an impression from within or without, acting upon the mind of the individual and exciting the reflex action of the brain and compels him, despite his desire or volition, to think or act in a particular manner. Persons who are under the influence of imperative ideas have, as a rule, a hereditary tendency to insanity. Being primarily mental, the imperative ideas occur under two forms—namely, motor and sensory. Under ordinary circumstances, persons who suffer from imperative suggestions are simply more or less annoyed by them, but they may become so unbearable that the victims may be led to commit suicide. It is reasonable to suppose that there is, in this class of cases, a deviation from the normal functioning of the brain. It should, however, be clearly borne in mind that in the large majority of cases the individuals are perfectly sane and thoroughly conscious of their thoughts and acts, but notwithstanding their will or desire are often absolutely incapable of resisting suggestions produced by the domination in the mind of imperative ideas. A sharp distinction must be made between persons who are conscious of the voluntary nature of their acts and those who perform similar acts under the influence of delusive ideas. In a small proportion of cases the impulse to suicide may be immediately followed by a loss of consciousness, during which the individual may endeavor to take his life by one means or another, and may even struggle with those who attempt to restrain him from carrying out his purpose. The impulse to suicide may be accompanied by an auditory hallucination in the form of a command, such as "Kill yourself," or as cited below, where the hallucination was that of hearing the strains of musical instruments. This, as well as other recorded cases, has a strong resemblance to certain cases of epilepsy.

The following case, mentioned by Dr. Wm. A. Hammond in his *Treatise on Insanity* (edition of 1883, p. 451), is admirably illustrative of the points I wish to emphasize:

"In another instance, recently under my observation, the impulse was renewed periodically as many as nine times, and three separate attempts to carry it out were made. In this case, as in others cited in this connection, there were no delusions, but at each recurrence of the emotional disturbance there were hallucinations of hearing, apparently, however, without any relation, so far as their character was concerned, to the impulse to self-destruction. The patient, twenty-eight years old, was the wife of a physician in a neighboring State, and had suffered from repeated attacks of intermittent fever. She had

been sleeping badly for several nights, and had been greatly troubled with frightful dreams. One night she woke with a sound of musical instruments in her ears, and with a desire to kill herself with a pair of scissors which she knew lay on a table in an adjoining room. Without disturbing her husband, who was sleeping by her side, she got up, lit a candle, and went to get the scissors. She recollected distinctly that while going into this room she had heard voices singing the words of a popular song of the day to an accompaniment of musical instruments. She recognized the fact that this was an hallucination, but the thought struck her that she would die to sweet music—a desire she had always expressed when the subject of death was discussed in her presence. She found the scissors and, opening them, said aloud, 'Now I am going to be happy,' instantly plunged the sharp blade into her left breast. The point entered just below the nipple, penetrating the mammary gland, but not entering the chest. Before she could repeat the blow, her husband, who had been awakened by her exclamation, entered the room and disarmed her. The wound was of no great consequence; her embonpoint had saved her life.

"Instead of consulting another physician, the matter was kept quiet, especially as it was thought by those about her that she had been excited by a large dose of quinine which she had taken that afternoon. The impulse had disappeared and she expressed the utmost gratification at the failure of the attempt. But exactly two weeks subsequently, while engaged in sewing one afternoon, she experienced a renewal of the impulse. Again she felt that nothing would give her so much pleasure as the act of suicide, but instead of a pair of scissors a penknife was indicated as the weapon. Again she heard delightful music. She immediately opened a small penknife which she had in her workbasket, and rolling up the sleeve of her dress, gave herself a deep gash across the bend of the elbow. She watched the blood flow in a stream from her arm, experiencing all the time the most intense satisfaction at what she had done. On the seventeenth day from the second attempt the desire to kill herself returned. This time, however, she was not alone, and she was prevented from sticking a two-pronged steel fork into her chest. The accession of this impulse was like the others, attended by the hallucination of music. After this she had, at intervals of fourteen days, five other recurrences of the impulse to kill herself, but as she was closely watched at the expected times she was unable to effect her purpose. Each was marked by the existence of a pleasurable feeling, and by hallucinations of music. She felt as though she could with an effort overcome the impulse, and she often reasoned in regard to it before making an attempt on her life. The emotion of pleasure, however, which she felt would reach its height with the perpetration of the act, swept everything before it. The desire became so intense that no influence but that of main force sufficed to prevent her from accomplishing her purpose. As she said to her husband one day, 'If God Almighty and all His angels were to beg me to refrain, I could not do it.' In the intervals she thanked those who had interposed for their good offices in having saved her life, but always reminded them that she knew she would make the attempt again and that they must be on the watch. The impulse lasted not more than fifteen minutes. During its existence she struggled to escape from those who held her, or from the bands which confined her hands.

"At the ninth recurrence of the impulse she attempted to cut her throat. Preparations were then made to place her in a private hospital, but in the meantime she suffered from an attack of pleural pneumonia from which she died."

As already observed, it is interesting to note in studying the history of this case the close analogy between it and those of certain cases of epilepsy in which the mental symptoms predominate. Thus we have an imperative impulse accompanied by an auditory hallucination, the attacks, in general, having a definite periodicity and lasting for approximately the same length of time. In other cases there may be vasomotor disturbances which occur simultaneously with the impulse, as in the case referred to below. The symptoms noticed by the patient were a feeling of heat in the right side of the face, redness and burning of one ear, together with a humming noise in the ear.

Some cases do not yield to the morbid impulse to suicide, either because they are restrained by religious motives, or through love of life. In other cases a mental struggle occurs several times before the individual either overcomes his scruples or attains sufficient courage to bring the act to a successful termination. In other cases the impulse may be at first slight, but at each recurrence of the impulse it is stronger than it was the time before, so that sooner or later the mind of the individual is, for the time being, under the complete domination of the imperative suggestion to commit suicide.

There is a strong emotional element in some cases, the impulse to suicide being accompanied by a feeling that nothing would give so much satisfaction as a successful attempt to end their lives. This condition of mind was well shown in the case already quoted, where the desire for death, with its accompanying pleasurable emotion, became so strong that nothing but main force could prevent the patient from consummating her wish.

The last two phenomena mentioned concerning the imperative suggestions to suicide—namely, that each successive impulse may be stronger than its predecessor, and that the actual desire for death may dominate the mind—may occur together in the same individual, and this fact is illustrated in another of Hammond's cases. In

this patient, when the impulse to suicide appeared for the first time, she was unable to gratify her wish as she could find no poison in the house. On the second appearance of the impulse she was walking in the street and immediately entered a pharmacy and endeavored to purchase two grains of strychnine, stating that she wished to use it for rat poison. The clerk refused to sell it to her and the impulse soon passed over. When the impulse recurred for the third time, it was much stronger than on the two previous occasions, and she procured and took a large dose of opium. On this occasion she felt that nothing could give her so much pleasure as taking her own life. As in this patient's case, certain individuals may be seized with the impulse to kill themselves, but no means of so doing being at hand at the time, the impulse and the desire to die soon pass away, only to return at some future period. In some cases, after the brain storm has passed over and the patient has not succeeded, or has been prevented from killing himself, a feeling of relief is experienced.

2. *Suicide in the Sane.*—The love of life is an instinct so deeply and firmly implanted in the human breast that only the most potent and what appear to be all sufficient reasons can induce man to put an end to his own existence. The love of life is universal in the animal kingdom and is the principal cause which impels the lower animals to protect their lives, to the best of their ability, from their natural enemies. Esquirol, who more than three-quarters of a century ago made a thorough and exhaustive study of suicide as it occurred under various forms and conditions in his day, gives two great underlying motives which operate in the production of suicide—namely, the wish to obtain "a good more precious than life," or the avoidance of "an evil more formidable than death."

According to Bucknill and Tuke, suicide is a perversion or a reversal of the natural instinct of love of life, leading to its destruction.

The history of suicide has its origin in very early times. It is recorded that many of the Japanese and Hindus voluntarily ended their lives as the result of religious fanaticism. Certain philosophers of Greece and Rome held and taught the doctrine that suicide under certain specified conditions was proper and justifiable.

The limits of this paper will not permit an exhaustive discussion of the subject of suicide in the sane. I will, however, give a brief summary of the causes and conditions which appear to be the most potent factors in impelling the individual to take his own life.

We not infrequently read accounts in the newspapers and hear it said by thoughtless persons that Mr. A. or Miss B. committed suicide owing to the fact that he or she was temporarily insane when the act was perpetrated. Such statements and opinions should be given but little weight from a scientific standpoint until the facts concerning the alleged cause of the suicide has been thoroughly investigated. To say that because a man destroys himself he must necessarily be insane is not only untrue, but is manifestly unjust as regards the unfortunate sufferers from mental diseases. Out of justice, then, to the insane, this erroneous impression should be corrected, for, as already stated, many persons take their own lives every year who are perfectly sane and in whom the moral sense is unimpaired.

Esquirol, in his elaborate analysis of the subject, considers the motives which lead to the production of suicide in the sane under two heads, to wit: Acute or unpremeditated, and chronic or premeditated. I cannot do better than to take his classification, and for the sake of clearness and brevity place it in the form of a table.

Motives of Suicide in the Sane.—1. Acute or unpremeditated.

Terror.
Love.
Anger.
Jealousy.
Disappointed ambition.
Honor compromised.
Loss of fortune.
Love betrayed.
A sudden and unexpected trial, etc.

2. Chronic or premeditated.

Hatred or weariness of life.
Physical suffering.
Moral suffering.
Fear of being victim of mental disease.
General poor health.
Debilitating diseases.
Onanism.
Nostalgia.
Alcoholism.
Misery.
Wars (defeats in battles and sieges).
Political excitement.

Contributing Causes and Conditions Which Tend to the Production of Suicide.—Heredity, mental instability, great calamities. Transition from an active life to one of idleness and repose. Abandonment, forced or voluntary, of worldly pleasures. No fitness for the arts or sciences. Epidemics of suicide. Reading of successful attempts at suicide. Hot weather.

Imitation.—More apt to occur in girls who have not menstruated, or imperfectly so.

By a careful examination of the above table it will be observed that the causes which tend to operate in the production of suicide are both numerous and varied. The table also shows that there are certain contributary causes, either mental or physical, which tend to favor the act of self-destruction.

Occasionally certain individuals make significant remarks relative to voluntarily terminating their existence, or at other times they may even go so far as to feign attempts at suicide for the purpose of obtaining some desired object

which had been withheld, or because they had not been permitted to have their own way about some particular thing. This class of cases is largely made up of women of the hysterical type. When such persons actually make attempts at suicide, it is very rare that they have either the real wish or intention to end their lives, but only feign the act in order to obtain the object of their desire, or for the purpose of becoming themselves objects of solicitude and sympathy.

It is not an unfamiliar fact, that children have been known to commit suicide. Numerous cases have been recorded from time to time in medical literature. These children usually have a bad family history and are of an unstable nervous diathesis. The causes which lead to self-destruction in children may be a sudden morbid impulse, or fear of punishment, or the act may be performed for the purpose of revenge, as, for example, for not being permitted to have his own way.

It is a matter of record that there appears to be in some families a hereditary tendency to suicide. On reaching a certain age, each surviving member (usually male), is seized with an uncontrollable impulse to take his own life.

3. *Suicide in the Insane.*—As is well known, the impulse to suicide occurs as a symptom in certain forms of insanity, as is shown by the accompanying table:

Table showing forms of insanity in which the impulse to suicide are most liable to occur.

Melancholia.—Four out of five cases more or less suicidal. One in twenty dangerously so.

Melancholics with hypochondriacal symptoms.—May make attempts, usually of an abortive nature.

Melancholics, giving previous history of alcoholic excess.—One-half dangerously suicidal.

lucination or delusions.

Acute mania.—May occur as the result of hal-

Dementia, due to chronic alcoholism and cerebral atrophy.—66.6 per cent. determinedly suicidal.

Puerperal insanity.—25 per cent. actively suicidal.

Epileptic insanity.

Toxic insanities.

In general terms, suicidal attempts are made by the insane, either as the result of the loss of the natural instinct of love of life, or of a feeling of unworthiness to live longer. There may be a fear that some one is secretly trying to poison them, or that they are in imminent danger of being murdered. They may be terrified by some frightful hallucination of sight, or they may hear the voice of God commanding them to kill themselves. They may labor under religious delusion, and believe that it is God's wish that they should end their lives, or they may believe that they should sacrifice their lives for the sake of others, etc. Imperative impulses to self-destruction may occur as symptoms in the course, either of insanity or epilepsy.

Diagnosis.—When a physician is called to see a patient who has made an unsuccessful attempt at suicide, he should make a thorough inquiry into all the circumstances of the case in order to be enabled to come to a correct decision as to whether or not the attempt at self-destruction was due to an imperative suggestion and uncontrollable impulse to suicide, or was the result of a calm, premeditated, voluntary act of a man in a sound state of mind and understanding, or was that of a man suffering from insanity.

Treatment.—If it be shown conclusively, on careful investigation, that the patient's act was a motiveless one and performed under the influence of an imperative suggestion, he should not be held accountable for the act. In other words, should a patient of this type be placed under arrest on the charge of having made a criminal attempt to take his own life, the fact that the act was performed in a sudden and impulsive way, without any adequate cause or provocation, should be given due weight when the case is brought to trial. The cases of Dr. Hammond, already referred to, are typical of this class of impulsive patients.

A thorough examination should be made of the patient's mental and physical condition. Careful inquiry should be made into the patient's previous history with a view to ascertaining whether or not there is a hereditary tendency to insanity. Inquiry should also be made as to whether the patient had ever received a blow or fall on the head, or whether he had previously suffered from epilepsy, neurasthenia, hysteria, chorea, etc.

These patients should be kept under constant and efficient supervision, either at home or in some suitable institution. Change of scene and climate may be found to be of service. The mode of life and diet should be regulated. The general health should be improved, and should any disorder of the nervous system exist it should be treated. Any irregularities in the vasomotor system, if they exist, should be rectified, and the condition of the menstrual functions in women should receive careful attention. It is thought that considerable benefit may be derived in these cases by the use of psychotherapy, and in severer cases, by the use of hypnotism. By adopting a course of treatment along the lines above suggested, there might be some reason to hope that ultimately, in some cases, the tendency to the development of imperative ideas would gradually cease, and that, sooner or later, the will would be able effectively to control any sudden morbid impulse to suicide that might occur.

2. Concerning unsuccessful suicide of the sane little can be said. The law must be allowed to take its course in these cases. All that the medical profession can do is to endeavor to raise the moral tone of the community and to strive to create a strong public sentiment in opposition to such a revolting and cowardly act as suicide.

3. When a physician or surgeon is called upon to treat a patient suffering from any disease whatsoever, it is incumbent upon him to use "a reasonable degree of skill and learning" in the conduct and management of the case. Thus the medical practitioner on being called to see a patient, after making a thorough physical examination, pronounces the case to be one of lobar pneumonia. He then proceeds to give careful and detailed instructions concerning the nursing of the patient, such as when to give the medicine, the kind of diet to be used, the best method of obtaining proper ventilation, etc. Similarly a surgeon, after having examined a patient, makes, for example, a diagnosis of appendicitis. He then gives the patient the needful advice concerning his condition, and states whether or not an early operation is necessary, etc. In the same way, when the family physician is called upon to treat a case of mental disease, he should make a thorough mental and physical examination of the patient. The patient's previous history should be carefully inquired into, and any facts concerning an hereditary tendency to insanity, epilepsy or alcoholism should be elicited. If, for example, the diagnosis of simple melancholia is made and the patient's relatives insist on trying to care for him at home, the physician should proceed to give the necessary advice as to the proper mode of life, diet, exercise, baths, medication, etc. Furthermore, bearing in mind that the impulse to suicide is frequently present in melancholics and is especially liable to be a prominent symptom in simple melancholia, the physician should not neglect any known means to safeguard the life of his patient, and should give the proper advice and the most minute instructions to the relative, nurse or person in charge of the patient concerning the requisite precautions to be taken. In giving such advice, he should carefully bear in mind the melancholic patient's mental attitude toward the subject of suicide. He must, as it were, place himself in the patient's place in order thoroughly to appreciate the all-important fact that, at times, all the patient's thoughts and all his powers of attention are concentrated upon the one subject of how he can successfully, and with the least possibility of detection, or interference from others, take his own life. It is equally important that all necessary precautions should be taken, even with those patients who have not shown any suicidal tendencies, as in some cases the morbid impulse to suicide may be aroused by the sight of a convenient means of self-destruction. It is very important that the patient's mental attitude toward suicide should be carefully explained to the relative, nurse or persons in charge of the patient. In short, every contingency should, as far as possible, be foreseen and every means by which the patient could, in any manner consummate the act of self-destruction should be anticipated and removed. It is only necessary to read the history of a dangerously suicidal case of melancholia such as the one reported by Clouston (p. 108, first edition), in order to be able to appreciate the force of the above remarks. In acute melancholia the danger of suicide is greatest in the early stages of the disease. The attempts at suicide are more apt to occur in the early hours of the morning. Frequent threats concerning the act of self-destruction may be made before the attempt is actually undertaken. It is truly surprising with what calmness, coolness and cunning certain patients will develop the plan of suicide which they have decided to adopt.

The successful consummation of the act of suicide by an insane person is so distressing to the relatives and to those in immediate charge of the patient, and the publication of all the facts of the case causes such a shock to the public mind, that, as already intimated, every effort should be made to prevent the occurrence of such a catastrophe. The *Medical Record* of August 6, 1904, p. 222, referring to the increase of suicide in New York City, states that it is estimated that during the first six months of 1904 over 450 persons committed suicide, while 264 persons made unsuccessful attempts to take their own lives. There can be little doubt that many of these persons were suffering from mental disease at the time the act was committed. It is probable, however, that the lives of a certain proportion of these unfortunates might have been spared if the physician's instructions had been faithfully carried out and adequate precautions had been taken to prevent them from ending their lives.

In order that this point may be more clearly understood, I will, for illustration, choose at random from the daily newspapers accounts of persons who, being undoubtedly insane, have committed suicide.

A lady became despondent owing to her husband having had business troubles. As her depression continued, patient made an attempt to drown herself, but was rescued. Eighteen days later the patient, in the company of her mother and little boy, took a trip on a steamboat to a neighboring town. Shortly after going on board the boat, patient said that she was going to unpack her trunk, and kissing her little boy, requested her mother to go on deck with him. Patient was found dead in the stateroom a short time later, having hung herself with her little boy's nightgown.

A lady had suffered for some months from melancholia as the result of a bereavement. Her condition was such that she had to be kept under constant surveillance. Patient resided in a hotel and was in charge of a relative. On the afternoon of the suicide patient was agitated, complained of the heat, insisted upon having the windows wide open. After a time patient went into corridor, followed by the relative. Before she could be prevented, patient rushed to the window and jumped from it with a fatal result.

A lady suffering from melancholia was residing in a hotel in charge of a nurse. The day of the suicide the patient's dinner was brought to the apartment by the waiter. The nurse stepped to the door to take the tray. The patient immediately went to the window and jumped out, the fall resulting in her death.

On glancing at the histories of these patients it will be noticed first, that two of these patients were under the supervision of relatives, which are not, as a rule, suitable persons to take charge of patients suffering from melancholia, especially should the suicidal impulse be a pronounced symptom; second, that two of the patients were residing in high buildings, and that apparently no attempt had been made by those in charge to see that the windows were so arranged that, by the employment of some simple device, they could only be raised or lowered a few inches.

The lessons to be drawn from the study of the histories of these cases are obvious. If the patients are to be kept at home, or are to reside in hotels, they should be kept under strict and constant supervision, by nurses experienced in the care of cases of mental disease. No precaution should be omitted, no matter how trivial, or apparently needless, in order to prevent the patient from making an attempt to take his own life, or to do himself some bodily injury. If the relatives of such patients are unwilling or unable to provide proper and efficient supervision, the patients should be removed to some suitable institution for care and treatment. The windows, as previously alluded to, should be so arranged that they can only be raised or lowered a few inches, or the lower sash can be fastened permanently, and the upper sash lowered. All cutlery and sharp instruments, such as knives, scissors, razors, pins, needles, nails, tacks, etc., should be taken from the room. Nails and hooks on the walls should be removed, together with any rope or string with which the patient could hang or choke himself. It may be necessary to avoid the use of glassware, or it may be necessary to take away the patient's eye-glasses, for fear that he may break them and swallow the pieces, or use one of the pieces with which to cut himself. It is strongly advised, however, that such dangerously suicidal patient be placed in a suitable institution, as they are very difficult to manage in private practice.

Suicide which occurs in the course of acute mania or of the toxic insanities, notably the delirium of acute alcoholism, is usually due to terror resulting from illusions or some frightful visual hallucination, or to fear arising from delusion, such as the belief that some one is about to murder them, or is going to do them some serious bodily injury. As shown by the foregoing table, 25 per cent. of the cases of puerperal toxemia are actively suicidal. Fortunately, owing to modern advances in midwifery, resulting from the adoption of antiseptic methods, these cases come under observation far less frequently than formerly. However, when it becomes necessary to treat these cases, the danger of suicide must not be overlooked.

As regards the other forms of insanity referred to in the table in which suicide may, at times, occur as a symptom, little here need be said, as patients belonging to these groups are not commonly seen in private practice, they having long since become inmates of institutions for the care and treatment of mental diseases, owing to the chronic nature of their malady, and the inability of relatives properly to care for them at home. It must not be forgotten, however, that there is a real danger of suicide, even among chronic melancholics, and in case such patients be still kept at home, efficient surveillance should always be a matter of prime importance.

If these few simple and practical suggestions concerning the prevention of suicide be faithfully carried out, there is reason to hope that the number of suicides among the mentally afflicted, and especially among those who live outside of institutions for the insane, will be materially diminished.

IMMIGRATION—THE MEDICAL EXAMINATION OF IMMIGRANTS AND WHAT THE NATION IS DOING TO DEBAR ALIENS AFFLICTED WITH TRACHOMA.[1]

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New York is the gateway for about 75 per cent. of the total immigration into the United States. More than 600,000 aliens arrived at this port during the fiscal year ended June 30, 1904, nearly three times as many as at all other ports of the country combined. Eighteen per cent. were cabin passengers and 82 per cent. came in the steerage. In addition to the 600,000 aliens, more than 100,000 cabin and steerage passengers arrived, who, after primary inspection proved to be citizens of the United States.

The total arrivals at New York for the year named was about 4½ per cent. less, and in the country at large about 5½ per cent. less than the number recorded for the year preceding. Nineteen hundred and three (1903) was the record-breaking year of immigration. The next nearest approach to the two years mentioned was the year 1882. But the records for the past twenty-five years show a fairly heavy annual immigration. More than eleven million alien immigrants arrived in this country during that period—an average of nearly half a million a year, not counting the present year (ending June 30, 1905), which will exceed all previous records and probably reach the million mark. During these twenty-five years immigrants have come from as many countries, and the foreigners now in the United States represent about forty different

[1] Read before the Ophthalmological Section of the Academy of Medicine, May 18, 1905.

races or peoples. It is not within the scope of this paper to recite the proportion or relative proportion of arrivals from all the different countries, interesting as a compilation of such statistics might be. One of the most striking and significant facts, however, may be noted: During the first fifteen years of the quarter of a century referred to, and for a number of years before, by far the largest number came from the German Empire—more than 25 per cent. of the total immigration from Europe was German. No other country was even a close second. though large numbers also came from the United Kingdom (England, Ireland, Scotland and Wales) and from Scandinavia (Norway, Sweden and Denmark). Southern Europeans, especially Italians, were in evidence, but it was not until about the year 1895 that Italy began to take the lead and to assume the position formerly held by the German Empire in adding, though less permanently, to the population of the United States of America. This position Italy has steadily held since that time, dividing the honor, however, during the last six years with Austria-Hungary and the Russian Empire. The total arrivals from Europe during these six years (to June 30, 1904) aggregated nearly three and a half millions, and of this number Italy, including Sicily and Sardinia, furnished nearly one million. Last year, and the year before, however, the German arrivals numbered upward of forty thousand and the Scandinavians more than fifty thousand.

In the race statistics the Southern Italians head the list, but their number is only slightly in excess of the Hebrews—chiefly from Russia, Austria-Hungary and Rumania.

There is, however, a considerable reverse current. It is estimated that the annual outgoing alien travel amounts to about 35 per cent. of the total annual immigration, and of this proportion Italians constitute about 50 per cent. I make this statement now, because of a general, but erroneous, impression that seems to exist regarding the number of Italians in the United States. The net increase in population by people from that country is just about one-half of that indicated by one-sided statistics. The outgoing travel varies in different years, according to the industrial conditions in this country. But it is safe to say, only about one-half of the Italians that come to our shores remain here.

The United States Immigration Service is very extensive, and very well organized. It covers more than fifty ports or places of entry, including points on the Canadian and Mexican borders. The business is conducted under the laws of the Federal Government, and regulations issued by the Commissioner-General, approved by the Secretary of Commerce and Labor. The larger or more important stations are under the immediate control of Commissioners—one for each station. At the smaller, or substations, the business is conducted by an inspector-in-charge.

At the port of New York there is one Commissioner, one Assistant Commissioner, one superintendent, three boards of special inquiry, about 75 inspectors and 300 clerks, interpreters, matrons and other employees, exclusive of the officers and attendants of the Medical Division and Immigrant Hospital.

The physical and mental examinations of all arriving aliens are made by medical officers of the U. S. Public Health and Marine Hospital Service, detailed by the Surgeon-General or by the Secretary of the Treasury. The medical officers thus detailed are responsible for the efficiency of the medical examination. This examination is conducted in conjunction with the inspection instituted by the Commissioner of Immigration, and in accordance with the requirements embodied in the official book of instructions, by direction of the Surgeon-General and approved by the Secretary of the Treasury.

The medical office in connection with the Immigration Service at the port of New York is divided into three parts:

(1) Line or primary inspection of all passengers arriving at Ellis Island; examination of all immigrants turned aside from the line for further examination; the supervision of the ambulance service and of the admission of immigrants to and discharges from the different hospitals (the Immigrant Hospital at Ellis Island and the Contract Hospitals in the city); the issuing of all medical certificates of examinations, the making of all records, and the ten thousand and one memoranda pertaining to the immigrants turned aside from the line for special examination, or treated in hospital.

(2) Care and treatment of patients admitted to the Immigrant Hospital, the supervision of the duties of the hospital employees and the care of the hospital buildings and grounds. Nearly four thousand patients, including 500 accompanying persons, were admitted to this hospital last year, and the number for the current year will be considerably larger.

(3) The examination of cabin passengers on board of incoming vessels (if necessary sending them to hospital, or to Ellis Island for further examination), and the examination of all steerage passengers requiring immediate attention, or ambulance transportation to hospitals direct from ship.

The Immigration Service is governed by the regulations already referred to. These regulations are based on various acts of Congress; the latest is the Act of March 3, 1903, composed of 39 articles or sections.

Under Section 1 there is levied a head tax or "duty of $2 for each and every passenger not a citizen of the United States or the Dominion of Canada, Republic of Cuba, or the Republic of Mexico, who shall come by steam, sail or other vessel from any foreign port to any port within the United States, or by any railway or by any other mode of transportation from foreign con-

tiguous territory to the United States. . . The money thus collected shall be paid into the United States Treasury and shall constitute a permanent appropriation to be called the 'immigrant fund,' to be used . . . to defray the expenses of regulating the immigration of aliens into the United States." . . .

Section 2 directs the exclusion of "all idiots, insane persons, epileptics and persons who have been insane within five years previous; persons who have had two or more attacks of insanity at any time previously; . . . persons afflicted with a loathsome or with a dangerous contagious disease." . . .

Section 8 imposes heavy fine ($1,000) or imprisonment against any person bringing into or attempting to land in the United States any alien not duly admitted by an immigrant inspector or not lawfully entitled to enter the United States; and Section 9 provides that there shall be paid to the collector of customs $100 for each and every alien afflicted with a loathsome or with a dangerous contagious disease, if it shall appear to the satisfaction of the Secretary of Commerce and Labor that the existence of such disease might have been detected by means of a competent medical examination at the time of foreign embarkation; and no vessel shall be granted clearance papers while such fine imposed upon it remains unpaid.

Sections 20 and 21 provide among other things: That any alien who shall come into the United States in violation of law, or who shall be found a public charge therein from causes existing prior to landing, shall be deported . . . to the country whence he came at any time within two years (and under certain conditions within three years) after arrival at the expense of the person bringing such alien into the United States, or, under certain other conditions, at the expense of the immigrant fund.

Section 30 provides among other things: "That no intoxicating liquors shall be sold at any United States Immigrant Station," and Section 34, *that no intoxicating liquors of any character shall be sold within the limits of the Capitol building of the United States.*

The medical examination of incoming travelers at New York begins at the entrance of the harbor—at the State Quarantine, and is made by State officials. No passenger is detained there, however, unless he presents symptoms, has been exposed to, or is suffering from a quarantinable disease—smallpox, yellow fever, cholera, typhus fever, or plague.

Immediately upon the completion of the State Quarantine inspection the vessel is boarded by immigrant inspectors and medical officers of the Public Health and Marine Hospital Service, who examine the cabin passengers and complete their work by the time the ship arrives at her dock in the city, Jersey City, Hoboken or Brooklyn. Any cabin passenger found to be afflicted with physical or mental disability is immediately certified by the medical officer for the information of the immigrant inspector, except such as may be detained on board or sent to the medical office or hospital at Ellis Island for further observation or treatment. The medical officer then examines any sick persons that may be under treatment in the ship's hospital, and any aliens among them are immediately transferred to the Immigrant Hospital, or to one of the contract hospitals, as the case may be. (The contract hospitals this year are the Long Island College Hospital and, for acute contagious diseases, the New York City Health Department Hospitals.) It is not a very uncommon occurrence for a ship to arrive with 20 cases of measles on board, and occasionally with 40 or more. There is also a considerable number of cases whose symptoms only develop after arrival at Ellis Island, and who are then transferred to the Health Department Hospitals. Cabin passengers entitled to land are released at the city dock, but all steerage passengers are carefully grouped in accordance with the lists or manifest sheets and numbers and then transferred by means of barges to the Immigration Depot at Ellis Island. Immediately after arrival at the island they are inspected by medical officers. The present arrangement consists of two lines for primary medical examination, with two medical officers and necessary attendants on each line. The first doctor takes his place about fifteen feet up the line and examines the immigrants as they come along in single file. He indicates by a chalk-mark on the immigrant's clothing that he has observed some physical or mental defect or suspicious symptom, and then allows him to proceed in line along with the apparently healthy ones to the second doctor at the end of the line. The second doctor repeats or supplements the examination of the first, everts all eyelids and turns aside for further or special examination (in the rooms provided for the purpose) each and every immigrant, including those marked by the first doctor, presenting signs or symptoms of disease, defects or abnormal conditions of any kind.

Those who are passed on the primary examination are immediately turned over to the Registry Division, where the immigrant inspectors begin their work, and aliens in the examination rooms are detained by the doctors only long enough to complete their examination; and until the necessary certificates, records, etc., are made for the information of the immigrant inspectors or boards of special inquiry, except those sent to hospital for treatment or for further observation.

Trachoma is one of the most troublesome diseases. As already stated, the eyelids of all arriving immigrants are turned (everted) and carefully examined; and all cases not clearly entitled to pass are detained for observation.

Trachoma is classified by the government as a dangerous contagious disease, and all aliens certified for this disease are excluded, and, as already indicated, a fine of $100 is imposed for each and

every alien brought to this country afflicted with such disease in whom the existence of the disease might have been detected by means of competent medical examination at the time of foreign embarkation.

All cases of chronic trachoma have not been placed in this category, for the reason that in some cases it is difficult to say that the disease was not quiescent or apparently cured at the time of foreign embarkation, and a competent medical examiner might have been honest in his opinion that the disease was cured. Occasionally foreign medical certificates are presented to that effect, when examination of the case on arrival at Ellis Island shows the disease in active form—evidently a relapse or recrudescence of the old affection.

Among the thousands of arriving aliens at this port all forms of inflammatory diseases of the eyes are met with, from the simplest conjunctivitis to the most severe form of trachoma. The mildest cases of conjunctivitis are not detained; others, somewhat more marked, are admitted to hospital for further observation. Many of these improve rapidly, and after a few days are released from hospital. Some cases of the acute, follicular or slightly granular forms of conjunctivitis are held for a further period of observation or treatment—ten days or two weeks, or longer if necessary.

In city or local practice the diagnosis might not be of any material consequence. No particular harm would be done were the word trachoma applied to all the different forms of conjunctivitis. At Ellis Island, however, and everywhere in the Immigration Service, the diagnosis is of very great importance, for the reason that the government has defined trachoma as a dangerous contagious disease, and the law directs that all aliens thus afflicted shall be excluded from admission to the United States.

The following is an extract from the book of instructions issued by the surgeon-general for the guidance of officers detailed for the medical examination of arriving aliens: "For the purpose of carrying out the provisions of the immigration law, diseased, abnormal, crippled and deformed aliens may be regarded as divisible into two general classes. Class A. Those who are excluded from admission into the country by reason of the existence of a disease or abnormal condition of a character expressly declared by the law itself to constitute a ground for such exclusion. Class B. Those who present some disease or defect, physical or mental, which may be regarded as conclusive or contributory evidence to justify the exclusion, by the proper immigration officers, of the person in question as an alien 'likely to become a public charge.'"

In accordance with the present law, aliens of Class A must fall within one of the four subdivisions of that class, viz.: (1) Persons suffering from dangerous contagious diseases; (2) persons suffering from loathsome diseases; (3) insane persons (also epileptics, under the law of 1903); (4) idiots.

Trachoma is given first place in subdivision of Class A.

"The object is not only to prevent the introduction into this country of a communicable disease, but also to keep out a class of persons from whom so large a proportion of the inmates of institutions for the blind and recipients of public dispensary charity are recruited. For the purposes of this circular, the term 'trachoma' is used to designate a diseased condition of the conjunctiva, characterized by a mucopurulent discharge, firm, persistent hyperplastic granulation, and exhibiting a tendency to be associated with atrophy of the conjunctiva with scar formation, roughened corneæ, adhesive bands of cicatricial tissue, entropion, pannus, or even more marked evidence of inflammatory processes, not due to external traumatism. Examiners are therefore instructed to regard as trachoma any case wherein the conjunctiva presents firm, well-marked granulations which do not have a tendency to disappear when the case is placed in hygienic surroundings a few days, or does not yield rapidly to ordinary treatment, even though there be no evidence of active inflammation at the time of the examination, nor appreciable discharge, nor as yet signs of degenerative or destructive processes. Examiners are also instructed to regard as a possible case of trachoma any person who presents an active inflammatory condition of the conjunctiva, accompanied by a discharge, or a thickened infiltrated condition of the lids, and to hold such until, by treatment or otherwise, the examination may be satisfactorily concluded. Cases of acute inflammation of the conjunctiva presenting a granular appearance of the lids should be regarded as suspicious and final judgment be withheld until the case has been under observation for a period of at least two weeks.

"In view of the present state of medical science as to the etiology of trachoma, an immigrant should not be regarded as suffering with that disease whose conjunctiva presents only a granular appearance and a discharge, both of which rapidly and entirely disappear."

Last year, according to the report of the Commissioner-General, 7,994 aliens were excluded at the seaports of the United States, including 1,560 afflicted with a loathsome or dangerous contagious disease, and the report of the writer, published in the same volume (pages 106 to 119, inclusive) shows that 787 of these were certified and excluded at the port of New York on account of trachoma. The total number certified at this port for all causes was 4,802, but they were not all deported. The reason why all the trachoma cases were excluded, while a large proportion of persons certified for other diseases were landed, is indicated by the difference between the two general classes already referred to.

In cases certified under Class A—(1) persons suffering from dangerous contagious dis-

eases, (2) persons suffering from loathsome diseases, (3) insane persons, also epileptics (under the law of 1903), (4) idiots—the law is mandatory. In those placed in Class B and certified for a disease or abnormal condition, "affecting ability to earn a living" (as the certificate is usually worded), the immigration officers, or boards of special inquiry, have exercised discretion; the medical certificate in some cases being regarded under the law as contributory evidence only, or, as one of several factors constituting a condition which renders an alien "likely to become a public charge." For example, of 1,231 aliens certified for senile debility, a majority was landed; certain favorable factors in or about many of these cases outweighing that of the medical certificate to such an extent that in the judgment of the board the individuals affected were not likely to become public charges.

If, on the other hand, upon special inquiry an alien is denied admission on the ground that he is likely to become a public charge, he has a right of appeal to the department, through the Commissioner of Immigration. Friends or relatives may offer guarantee or bond against the likelihood of the alien becoming a public charge.

It is proper to say, however, that under the regulations of the Immigration Service, "no application for admission under bond of a debarred alien will be considered, except in cases in which the deportation of the alien in whose behalf such application is made would involve the separation of immediate members of a family." . . .

Thus, gentlemen, I have given a brief outline of immigration and the medical work at Ellis Island.

Trachoma, we are agreed, is a troublesome disease. We also agree that it is a dangerous contagious disease, but it was not thus classified by the government until the year 1897; and to the specialists of this country, and chiefly to the members of this ophthalmological section of the New York Academy of Medicine, is due the credit for every deportation on account of trachoma, that has been made since that time.

After some correspondence with Surgeon-General Wyman in 1897, and, in reply to a request as to whether trachoma shall be certified as a dangerous contagious disease, a letter was received from him transmitting and favorably quoting the then most recent literature on the subject, all agreeing that trachoma is a dangerous contagious disease.

Trachoma thus became an excludable disease, and since the year referred to thousands of aliens afflicted with trachoma have been certified at the port of New York and excluded from landing.

There are not now quite so many cases of trachoma found among arriving immigrants, which may be attributed to the fact that the steamship companies themselves are making considerable effort to prevent the embarkation of would-be immigrants, suffering from disease of the eye. This is especially the case at Italian ports where medical officers of the Public Health and Marine Hospital Service are on duty, and recommend the rejection of hundreds of applicants for passage to the United States.

"SORE THROAT": AS CAUSED BY SYSTEMIC CONDITIONS.[1]

BY NATHAN G. WARD, M.D.,
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THE term sore throat designates a symptom and not a disease. It is a clinical manifestation of pathological conditions varying from the most trivial indisposition to very severe illness, which sometimes terminates fatally. The physician cannot with safety, therefore, dismiss his patient with a gargle and say it will be all right to-morrow. In this paper I shall not discuss sore throat in connection with diphtheria, scarlet fever or other specific inflammations, but shall allude to it especially as seen in tonsillitis, peritonsillar abscess and general systemic disorders.

In a mild form sore throat is more or less present in all mouth-breathers. In these it is caused by an abnormal drying of the mucous membrane. The cold air reaches the throat without having been properly warmed and moistened (as in nasal respiration), acts as an irritant, produces hyperemia, and causes much discomfort. This result is augmented by the mechanical irritation of dust, gases and solid substances suspended in the air. When the coryza has subsided, or other impediment to nasal breathing has been removed, the irritation subsides and resolution is at once established.

The sore throat of inflammation of the tonsils and pillars of the palate is exceedingly painful. The pain is felt in the throat, at the angle of the jaw, and frequently in the ear. The tissues are stretched and compressed by the muscular movements of swallowing and articulation. When the swelling is great, ordinary respiration adds to the discomfort. The relation of tonsillitis to rheumatism is too well established to need comment at this time. In tonsillar and peritonsillar abscess the pain becomes most excruciating. The swelling near the angle of the jaw makes it impossible to open the mouth sufficient for the patient to clean the teeth and gums; hence the mucous membrane of the tongue and buccal surfaces becomes coated with a dense white or yellow fur, the breath fetid and the patient is unable to masticate and swallow. In some cases the pus burrows in the neck, or from pressure necrosis the blood vessels are involved, when severe hemorrhage occurs, sometimes causing death. The indication is clearly to open the abscess. But it is no easy matter to locate the point most likely to reach the pus cavity. The patient's inability to open the mouth, and the swollen and distorted tissues so obscure the land-

[1] Read before the Northwest Medical Society of Philadelphia, October 25, 1904.

marks in the tonsillar region as to make examination and operation very difficult. The pus sack may be multiple, so that if one pocket is opened others remain, and little or no relief will be had.

Ill results from opening peritonsillar abscesses are few and infrequent, yet of such grave importance as to make the physician anxious in each case. An anomalous artery, or one displaced by the swelling, may be cut. There is another condition not often seen, but momentous in its import when present—that is, the patient may be a bleeder. When the pus cavity is deeply situated, there is much congested tissue to cut through and much oozing may follow. I well recall an experience of this kind. The patient afterward denied a history of being a bleeder. The cut was made through a thick congested layer of overlying tissue; pus mixed with blood escaped. Then a constant hemorrhage kept up for an hour or more—no spurting from an artery or stream as if from a vein, but an oozing from the entire cut surface—until the patient was faint from the loss of blood. Adrenalin and astringents had not effect; they were instantly washed away by the bleeding. The hemorrhage was finally checked by injecting a 20 per cent. solution of alumnol, by means of a long canula, directly in the pus cavity and holding a tampon, on which had been dusted alumnol in powder, against the cut surface.

There is a type of sore throat caused by insufficient elimination. The action of the bowels, kidneys and skin are sluggish and the waste products of metabolism are retained in the tissues and circulation. These in time further interfere with normal metabolism and eventually compounds of varying degrees of oxidation are held in the blood. Some act as irritants, others as distinct poisons. Poisonous substances resulting from intestinal fermentation are absorbed and they also add their weight to the vicious circle.

It has been shown that the waste products circulating in the blood cause the peripheral vessels to contract; this accounts for the chilliness complained of by the patient. As the body contains the same amount of blood as before the contraction of the peripheral vessels, other parts must contain more than normal. It is evident that those areas in which the blood vessels are least supported by the surrounding tissues will be the first to yield, and that is in the blood supply to the mucous membranes. Any internal part of the body may suffer, but the mucous membranes of the upper respiratory tract do so most frequently. This is caused by the irritation produced by the dust and other impurities in the air breathed, but more particularly by the effort of nature to eliminate by the respiratory function substances retained on account of insufficient action of the other emunctory organs.

In some there will be a history of rheumatism, but many have never had an attack of inflammatory rheumatism, nor have there been articular inflammations in the family. Careful inquiry, however, will elicit the information that there is more or less tendency to constipation, bilious attacks, gastro-intestinal disturbances, aches and pains, which are constant, intermittent or neuralgic in character and changing from one part of the body to another. An examination of the faucial region shows congestion of the mucous membrane, edema, involving more particularly the submucosa; the lymph follicles stand out prominently, especially the chain of glands behind the posterior palatine arches. At times this is so marked as to give the appearance of a secondary arch. This ridge is partially denuded of epithelium and its general aspect is of a "slightly raw and granular appearance." The swelling often extends upward, presses upon the Eustachian orifices and partially or wholly prevents the interchange of air in the tympanum. In chronic cases Eustachian catarrh is produced and progressive deafness follows. The membrane over the base of the tongue, epiglottis and even extending into the larynx may become edematous and thickened. Difficulty of speech, varying from slight disphonia to aphonia, is the result.

Attacks are precipitated by various causes. Sudden changes in the atmosphere and, more particularly, in the relative humidity, drafts blowing directly upon certain parts of the body, and wet feet are important causative factors. Overwork, worry and prolonged fatigue are equally productive of this condition.

Old injuries, as bruises, sprains and fractures, are likely to be the seat of pain during atmospheric changes. Muscles subject to prolonged strain are equally liable to be the seat of complaint. For this reason singers and public speakers are prone to chronic sore throat and hoarseness. The strain to the pharyngeal and laryngeal muscles is not caused so much by prolonged speech as by improper articulation, added to by mouth-breathing and outdoor speaking.

The symptoms complained of in these autotoxic sore throats are out of all proportion to the local conditions as revealed by pharyngeal and laryngeal examination. Indeed, in some cases the appearance is not greatly abnormal, yet the patient complains of great discomfort, or even of excruciating pain. In not a few cases the muscles are involved more than the mucous membrane overlying. In these there is a distinct myalgia. These conditions have been variously called throat aches, throat neurosis and neuralgia of the throat.

The treatment is active elimination. All remediable measures tending to increase the action of the glands of the gastro-intestinal tract, the kidneys and the skin will be indicated. Tonics and alteratives to tone up the system may prove necessary. At the same time local applications are valuable. No routine formula can be adopted. What is soothing in one is a distinct

irritant in another, and in the same individual frequent changes may have to be made. The general indications are, soothing applications at first to allay the irritation, and afterward stimulating medicaments to absorb the exudation in the submucosa.

Delay in beginning, or neglect during treatment, will almost surely lead to organization in the connective tissue of the submucosa and, as in all fibrous tissue resulting from inflammation, contraction will follow. The blood vessels will be pressed, their lumen lessened and the blood supply will be gradually cut off. Atrophy of the epithelium and mucous glands will follow. The condition will be permanent; no treatment can restore the membrane to its normal function.

MEDICINAL TREATMENT OF AFFECTIONS OF THE THYROID GLAND.[1]

BY CHARLES R. GRANDY, M.D.
OF NORFOLK, VA.

THE whole treatment of disorders of the thyroid gland has been revised, since the discovery that, although it is a ductless gland, it has a secretion, and that his secretion has a vital influence on the whole organism. Before this discovery we merely knew that there was such a gland, and that it sometimes greatly increased in size and pressed on neighboring organs. But the symptoms of such a goiter are variable and must be attributed to other causes than pressure alone, although pressure symptoms still make up a very important group. The other symptoms are dependent, as we shall see, on an increase or a decrease in thyroid secretion.

Physiology.—It has been found that a dog, after extirpation of the thyroid gland, soon develops tetany and dies, but that symptoms can be prevented by grafting a thyroid into the dog's peritoneum, or by injecting or feeding him with fresh or dried glands. Though thyroidectomy seldom produces tetany in an adult man, it is apt to be followed by myxedema, while it will cause dwarfing and cretinism in a young child or beast, but both of these diseases can be checked or prevented by the administration of thyroid. The difference between the symptoms in dog and man is explained thus. In the dog, and occasionally in man, the thyroid, the accessory thyroids, and the parathyroids are all removed, in man the accessory thyroids are usually left, and these develop and do at least part of the work of the thyroid. Partial thyroidectomy, as a rule, produces no symptoms, the remnant of the gland hypertrophying and doing the work of the whole. Thus a total absence of thyroid secretion produces the symptoms of tetany and death. A marked decrease in secretion produces a slow, irregular pulse, a dryness of the skin and hair, followed soon by a puffiness, which does not pit on pressure, an increase in weight, and a marked dulling of the mental faculties—the symptoms of myxedema. In young children it interferes with the growth, the face becomes large and bloated, the abdomen swollen, the limbs thick and short, while the mind is idiotic or imbecile—the symptom-complex of cretinism. On the other hand, the administration of an excessive amount of thyroid extract produces a rapid feeble pulse, a loss of flesh and nervous and mental excitability, accompanied by sleeplessness and tremor.

What then is this thyroid secretion and how does it act? Baumann was able to isolate from the gland a substance which contained iodine and which would prevent tetany in thyroidectomized dogs just as well as the whole gland. This iodothyrine is certainly one of the thyroid secretions, whether it is the only one is still an open question. It is supposed either to neutralize directly some of the toxic substances, which are produced in metabolism, or to do so indirectly by stimulating the body cells to perform that work. In either case a deficiency in this secretion allows the toxic substances to accumulate and produce the symptoms already referred to. Like all other glands, the thyroid tries to supply just enough secretion to meet the demand made upon it, and this may cause a temporary increase in size, as is well shown when a part of the gland is removed and the remainder hypertrophies. Consequently we find the thyroid largest in young children, at the age of puberty, and in pregnant women, in which cases metabolism is increased and there are more toxic substances to be gotten rid of. The thyroid secretion also seems to have a special influence on the generative organs, it having been both clinically and experimentaly observed that lack of this secretion would produce sterility, but former myxedematous women have conceived under the administration of thyroid extract. While this applies especially to women in whom troubles of the thyroid most frequently occur, total thyroidectomy is said to produce impotence in men. As already mentioned, thyroid secretion has a decided influence on metabolism, large doses increasing the urinary solids and causing a loss of flesh, whereas a lessened thyroid secretion is followed by a decrease in urinary solids and an increase in body-weight.

I will now give a brief clinical discussion of the affections of the thyroid gland, along with some general remarks as to their treatment.

(*a*) We may have a decrease in the size of the gland, which may be congenital or from atrophy, or following removal. Here we have too little secretion, and may have cretinism, if the trouble starts in infancy, or more or less marked symptoms of myxedema, if it starts later on in life. The treatment is naturally thyroid extract, but its administration must be watched and the dose decreased or stopped when the pulse becomes rapid or weak. After such an interruption the drug is to be repeated to ward off returning symptoms. (*b*) We may have an enlargement of the gland which, when marked, is usually termed *goiter*.

1 Read before the Norfolk Medical Society, March 14, 1905.

(1) *Physiological Enlargement.*—There may be a temporary enlargement, produced to supply an extra demand for thyroid secretion, which disappears when the demand is relieved. Such a hypertrophy is sometimes seen at the age of puberty or during pregnancy, and can be looked upon as physiological, and hence calls for no treatment further than the relief of the intestinal auto-intoxication, which the thyroid may be working to overcome. In some cases, especially during pregnancy, when the auto-intoxication seems to be getting ahead of the thyroid and there are beginning symptoms of toxemia, thyroid extract has been given and good results are reported, though I have had no personal experience with such cases.

(2) *Enlargement with Decreased Secretion.*—If we remember that the amount of secretion is entirely dependent on the number and activity of the secreting cells, we can readily see that an enlargement due to an increase in connective tissue, to a collection of colloid material within the acini, or to a new growth would tend to decrease the secretion. This we find to be true in the majority of cases of goiter that come to us for treatment, though this decrease in secretion may be very slight. Such patients are generally quite fleshy, are easily tired, and have a slow pulse-rate, symptoms which distinguish them from patients with an excessive thyroid secretion, who have a rapid heart action, are nervous, and usually thin. When the secreting cells have been almost entirely destroyed by an inflammatory process, a cyst, or a new growth, we may have all the symptoms of myxedema or cretinism accompanied by a goiter.

There are certain regions, notably in the Alps, where goiter is endemic, but sporadic cases may appear anywhere. The etiology of these endemic cases is unknown, but it is interesting to note that Oswald found a deficiency in iodine in thyroids from such regions. It looks as if these thyroids in the first instance hypertrophied in response to a demand for more secretion, and that this hypertrophy persisted with retention of colloid in the follicles and with an increase of connective tissue. In the early stages of such a goiter, before much conective tissue has formed, the administration of thyroid extract will take the work off the gland and thus allow it to lessen in size. The good results obtained from the use of the iodides in such cases is also probably due to the artificial supply of the iodine, which the gland needed. As might be expected, neither of these remedies will reduce the size of the gland in old fibrous cases. In regions where goiter is endemic, we also find many cases of cretinism, cases in which the thyroid has apparently found its task too great, and has given up and atrophied, instead of hypertrophying.

The sporadic cases may also start as a compensatory hypertrophy or from an inflammation, which occasionally goes on to pus formation. I have seen two cases appear first in women past middle life, who had both had hysterectomy performed for fibromyoma. One of these apparently started as an inflammation, and probably developed into a malignant growth later. The other started in the same way, but was lost sight of.

In this variety of goiter the increase in the size of the gland may be great, but it is most often irregular, being sometimes confined to one lobe, or even the isthmus. Possibly the most important symptoms are due to pressure on the trachea, esophagus, vagus or the arteries and veins of the neck, which are frequently displaced. The rational treatment is consequently the removal of that part of the gland, which is exerting the pressure, regardless of the cause of the goiter, provided it be not malignant, as it is very hard to remove malignant growths of the thyroid entire, and operation may only hasten the progress of the disease. The operation is nevertheless always a dangerous one, the percentage of deaths on the table in thyroidectomy, being unusually large. There is, however, no reason to advise against thyroidectomy on account of the fear of myxedema, as this seldom occurs when a part of the gland is left, and can in any case be prevented by the use of thyroid extract. In cases due to an increase of colloid in the follicles, the size of the gland can be reduced by gentle massage and electricity, but as these measures are liable to throw an unusual amount of thyroid secretion into the circulation, we must watch for symptoms and be ready to counteract them by the use of arsenic. In this group of cases it is always well first to try the effect of thyroid extract and iodine, as they will be of benefit, if the formation of connective tissue has not gone too far.

(3) *Enlargement with Increased Secretion.*—Here we have a real increase in the secreting cells of the gland. These cases are distinguished by a rapid, weak pulse, nervousness, anemia, loss of flesh, and, when severe, by tremor, exophthalmos, and dilatation of the heart. They may also be accompanied by gastro-intestinal disturbances, or by albuminuria or glycosuria. The enlargement of the gland is not, as a rule, so great as in the last group of cases, and is more apt to be symmetrical. Indeed we are often called in to care for the nervous symptoms, and first discover the enlarged thyroid on careful examination of the patient. This was pointed out to me by the late Dr. Christopher, of Chicago, who showed me some slightly enlarged thyroids in children, and assured me that such enlargement was frequently found in thin, nervous, precocious children, who improve greatly on large doses of arsenic.

The etiology of this affection is still very obscure. It was formerly classed as a disease of the nervous system, the enlargment of the thyroid being considered a rather unimportant symptom, but as we have been able to produce all the symptoms by large doses of thyroid extract and relieve them by removing a part of the gland,

the hyperactivity of the thyroid is now considered the root of the trouble. What causes the primary increase in the thyroid we do not yet know, but it usually occurs in young women and often seems to be produced by some disturbance in uterine function.

The most pronounced form is known as exophthalmic goiter, Graves' disease, or Basedow's disease, and has long been a standing puzzle to the profession. The symptom of exophthalmos has been especially noticed, and, in my opinion, has had far too much stress laid upon it, as it is not near so troublesome as the tachycardia and nervous excitability which accompany this disease. Besides, as I have pointed out, we may have hypertrophy of the thyroid with increased secretion, but no exophthalmos, and exophthalmos without hypersecretion of the thyroid, as in tumors, aneurism, or hemorrhages of the orbit. In all events little good can be done a patient with Graves' disease by simply trying to relieve the exophthalmos, for we must try to get at the underlying causes. Since there is already an excess of thyroid secretion, the administration of thyroid extract will only add to the symptoms, and should never be used in this disease except possibly as a diagnostic measure. Our aim should be to decrease the amount of thyroid secretion in the body, and the most natural method is to remove a part of the gland, as has been successfully accomplished by various surgeons, notably the Mayos. The operation is, however, even more dangerous than that for goiter with lessened secretion on account of the dilated and irritable heart, and should be undertaken only by a quick, thoroughly competent surgeon. Medicinal treatment has been notoriously unsatisfactory, each writer having his own favorite drug, which often proves useless in other hands. Some recommend arsenic, others iron, digitalis, strophanthus, belladonna, ergot, bromides, chloral, thymus or adrenal extracts. Some believe in the application of cold, while others say that nothing compares with galvanism. The truth is that all these remedies are empirical, or merely to relieve temporarily some symptom, when their use is to be commended. Add to these a bland diet, with change of scene and climate, and possibly the rest-cure and hydrotherapy for the nervous symptoms, and we have nearly everything we can do medicinally. There is, however, one other remedy, which has been recently introduced, and which certainly deserves a trial. It is the attempt to destroy the excess of thyroid secretion by the introduction of substances which it normally neutralizes. This is done by the administration of the dried blood of animals, whose thyroids have been removed, and which should therefore contain a large amount of these substances. Good results have been reported, though it is still too soon to be sure of permanent benefit. As it is our only rational medicinal treatment, however, it should be tested thoroughly.

Summary.—We may have goiters with excessive secretion or goiters with too little secretion, which can as a rule be distinguished by the pulse rate. When the symptoms are not too urgent try thyroid extract and iodine in the latter and rest treatment and blood from thyroideetomized animals in the former class, but, if these measures are of little avail and the symptoms demand it, do not hesitate to call on a competent surgeon to partially remove the gland.

A VERY SIMPLE METHOD TO LOCATE THE STOMACH.

BY MARK I. KNAPP, M.D.,
OF NEW YORK.

"NOTHING new under the sun" and, possibly, the very simple method of locating the stomach, I am about to describe here, may have been observed before. But as I have not seen it mentioned or heard of it before, I shall here describe it.

In a few words I will review the other methods. Palpation is an art, and, when once mastered, is an excellent method. However, the thickness of the abdominal wall might have some negative influence, although to the expert palpator there will be very few cases that would present difficulty in palpation. Percussion is also of great benefit and practice is necessary to differentiate the resonance of the stomach from that of the circumlying and, at times, also overlying intestines. There is another method of percussion to which I would like to call attention. This I might call "soundless" or "vibratory" percussion which is performed in this way: The percussing finger very lightly taps on the finger that is on the abdominal wall so that the percussing finger elicits no sound. The finger used as plessimeter perceives different vibrations, according to whether the area percussed over has greater or lesser resonance. This method is a very delicate one, gives excellent results and is easily acquired.

Inflation by air or carbon dioxide has its advantages and its drawbacks. The inflation by air necessitates the introduction of the stomach tube, which is the disadvantage of this procedure. The inflation with nascent carbon dioxide, generated within the stomach, has as drawback the fact that we cannot always tell how much CO_2 will be necessary. The usual dose of bicarbonate of soda and of tartaric acid becomes inadequate in gastric dilatation and in insufficientia pylori; and, if too much CO_2 is generated this may become distressing and dangerous.

Transillumination is the most imposing of all methods, alike upon the physician and layman. It cannot be done in a patient, whose stomach is yet unused to the stomach tube, even if the patient himself offer no resistance, and the results obtained from transillumination have no superiority over other methods. For the purpose of impressing student and patient (for the latter, if a mirror is handy) this is the method par ex-

cellence; for scientific purposes its use is very limited.

Inspection.—I refer here to the seeing of the stomach curvatures, described by me in the New York *Medical Journal*, February 15, 1902, and in the *Deutsche medicinische Wochenschrift*, May 1, 1902. This is the best of all methods. Its practice is no hardship either upon the physician or upon the patient and its results are most accurate. Once one has mastered "seeing the curvatures" he will give their exact location even to within one-sixteenth of an inch.

The method I wish to add now, I admit, is not so accurate as the last one, but although it does not define the margin of the greatest curvature to within a fraction of an inch it will give good results, as sought by the practical general practitioner. This method might not give the exact size of the stomach, but it will tell how far up or how far down the stomach is. All that is necessary is to have the patient drink a glass of cold water, wait about half a minute and then put a hand on the patient's bare abdomen. The cold region on the abdomen locates the stomach.

The patient sits or stands, the abdomen freed from clothing but not uncovered, as uncovering the abdomen soon chills it. The physician's hand must not be cold. He must wait for about half a minute to allow the cold of the stomach to spread to its overlying skin. This method is available only for a short period, after the patient drank the water, because soon the cold area extends to circumlying structures, thus widening the cold zone; again, the cold water in the stomach soon warms up.

DRAINAGE AFTER LAPAROTOMY.

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Complete closure of the abdominal cavity in aseptic operation is a principle in surgery which is universally carried out, but there is considerable difference of opinion concerning the question of drainage in cases where infected material, as pus from rupture of pus tubes or ovarian cysts, gained entrance into the abdominal cavity. Ohlshausen gives a decided opinion, based upon 1,550 laparotomies, against any drainage in nearly all those cases of gynecological operations. He drains only those cases where a suppurating focus remains. It is evident that he finds many objections and opponents to this; it is difficult to prove the necessity or importance of drainage, as statistics fail and the question has to be decided by our subjective opinion. On account of that we must not figure as much on statistics, as we have to ponder the different cases.

When we consider the views and opinions of the various operations, we may classify them under three headings, viz., Is drainage necessary: (1) When pus or contents find way into the abdominal cavity through rupture of tumors; (2) where malignant or partially extirpated tumors or the purulent infiltrated abscess wall remains; (3) in operation with penetrating injury in the intestines.

I consider it a settled question that drainage is no longer indicated in the so-called mclean cases when a considerable quantity of non-infectious material finds entrance to the abdominal cavity. To this class belong such cases as pseudomyxoma peritonei, as do also cases of evacuation of cyst contents or old hematoceles into the abdominal cavity.

Concerning the first heading, contamination of the abdominal cavity with pus, I will consider 17 cases out of 257 laparotomies in which pus found entrance to the abdominal cavity through rupture of the tumor. None of these cases were drained. Sixteen made a prompt recovery, the other died on the third day of septic peritonitis. The origin of the pus in this last case was a pyosalpinx. At the operation extensive adhesions had to be broken up between it and the intestines, particularly the rectum. Symptoms became at once so severe that one had to consider an infection of the most virulent character, which surely the best drainage could not have overcome. Drainage was considered in all of these cases, and without doubt the majority of surgeons would have drained each one. I did not, and will explain my reasons later. Two of my cases were purulent ovarian cysts, 15 were pyosalpinx, each one of which, as the history showed, was of seven to nine months' standing. It is a pity that we have no means of immediately testing the virulency of the pus, but experience and scientific investigation teaches that pus of a gonorrheal origin is generally sterile after a period of nine to twelve months. A more infectious and longer lasting virulency is exhibited by the pus of the pyovarium, for here the menstrual congestion and the stratum of the ovarium, as a good soil, affords a very favorable medium for the development of the bacteria. Pus situated intraperitoneally as in the parametrium is most dangerous. In all these cases a definite diagnosis is of the utmost importance, for here laparotomy is contra-indicated. Naturally one often finds diseased adnexa complicated by parametritic abscess. In these vaginal incision is indicated as the first step.

In the second class, where malignant tumors are only partially extirpated or where a portion of the cyst wall remains, I not only consider drainage entirely unnecessary, but even dangerous. Drainage in these cases may cause secondary infection, rapid disintegration and sepsis. In two cases of intraligamentous cysts, where I was compelled to allow a part of the cyst wall to remain, and where, in extirpating the mass, a blind space remained in the floor of the pelvis, I did not drain, and the cases healed without any complications. I covered the defect as well as possible in one case; in the other case I had to leave it to its own fate.

For lesions of the bladder the exact suture is essential, and to prevent collection of urine in the bladder one should introduce a permanent catheter. But with injury to the intestines one has other conditions presenting. In these complications, I have lost two out of four cases. Ohlshausen statistics show a startling high mortality. I willingly admit that in case of perforated intestines with the escape of most virulent intestinal contents, the best suture and drainage will not suffice to hold an acute septic peritonitis in check, but I must advise, particularly with a doubtful suture, the placing of a piece of gauze in such position around the area of suture that in case the intestinal suture does not hold, feces cannot escape into the general peritoneal cavity. It is a sort of safety valve which does no damage and which can save a great deal of apprehension and reproach. At times we see fecal fistula develop in six to eight days cases where gauze drainage has been used after breaking up intestinal adhesions. I cannot help but think that the gauze in these cases assists in this formation of the fistula. In freeing the adhesions, the intestine loses more or less of its serous coat. The injured intestinal site is infiltrated and poorly nourished. When this site rests upon some gauze and not upon living tissue with which it can adhere, perforation is the result.

After careful study of our cases, and I am more convinced by a review of the individual cases rather than by the number of cases, I must agree with the eminent authority on gynecology, Dr. Ohlshausen, who rejects drainage in almost all gynecological operations. It is advised, however, in those cases of persistent pus focus and is recommended in all cases of injured intestines, particularly when our intestinal suture seems not to be trusted. Here gauze acts not as a sort of drainage but as a safety valve. That drainage, particularly drainage with gauze, is not altogether harmless has been proven. Experimentally we know that the gauze is generally infected within twenty-four hours and secondary infection has very often been observed. Furthermore, whereas healing per primary union cannot occur at the site of drainage, it is evident that this site becomes a *locus minoris resistentiæ*, for subsequent bacterial infections, not at all taking into consideration the difficulty one often finds with the patient through secondary omental adhesions to the drainage site.

Ohlshausen rightfully asks "What can we accomplish with drainage?" We can more easily get rid of the pus or suspicious fluid that presents itself with cotton wipes than with drainage. However, should the pus be most virulent, and here we have the punctum saliens, then neither cotton wipes nor drainage will suffice; the peritonitis will spread rapidly, the prognosis for the patient will be a hopeless one within twenty-four hours, long before the promising adhesions can be built up around the drain. It is an utter impossibility thoroughly to drain the abdominal cavity, with its many intestinal loops forming innumerable small cavities.

How then can we best guard our patient against infection?

1. Thorough careful indication for operation and operative procedure. All those cases which show a severe infection through high temperature and other symptoms should be operated upon only when operation is made necessary by *indicatio vitalis*, and then a preliminary vaginal incision should be made. We know that pus located intraperitoneally or in the parametrium is highly infectious.

2. Through selection of proper time for operative procedure. Pus from a pyosalpinx is sterile after nine months. When no immediate indication for operative interference exists, it is better to wait.

3. Through careful observance of the following preventive measures: Protection of the abdominal cavity with layers of gauze; careful separation of adhesions; removal of all visible pus; exact hemostasis, and rapid operative procedure.

MEDICAL PROGRESS.

SURGERY.

Infiltration Anesthesia in General Surgery.—The use of local instead of general anesthetics is shown by the statistics of many noted surgeons who claim that from 60 to 90 per cent. of all surgical operations can be performed under local anesthesia. R. M. Parker (*Chicago Med. Rec.*, April, 1905) reviews the indications and contra-indications very thoroughly. He states that there are three varieties of local anesthesia. (1) The direct, secured by applying the anesthetizing medium directly to the surface to be cut; (2) infiltration anesthesia, which is produced by injecting a solution of the analgesic into the structures to be cut; and (3) regional anesthesia, caused by injecting the cocaine solution in or around the nerve trunks which supply fibers to the field of operation. Of the three methods the infiltration method has by far the broadest field of usefulness in general surgery. The largest amount of cocaine which can be injected at one sitting is given by conservative authorities at gr. ¼. The dangers from poisoning is greatly diminished by retarding the circulation by the Esmarch constrictor, but preferably by the addition of adrenalin to the cocaine solution. The adrenalin causes in five to ten minutes an ischemia extending one half to one inch beyond the infiltrated area. The suprarenal extract should be added to the infiltration fluid in the proportion of one to twenty or thirty thousand. The author has used eucaine, various solutions of cocaine and sterile water for infiltrating. He considers that the injection of solutions containing one per cent. cocaine is followed by prompt and complete anesthesia over the whole infiltrated area, which lasts twenty to thirty minutes. No advantage is to be gained from stronger solutions. The author considers the contra-indications to infiltration anesthesia to be as follows: (1) Insurmountable fear on the part of the patient; (2) where muscular relaxation is required; (3) in plastic operation where infiltration would destroy relations. Among the objections which have been urged against the infiltration method are: (1) Danger of cocaine poisoning.

Since the introduction of suprarenal extract and eucaine this objection no longer holds. (2) Sloughing of the tissues following its use. To what extent infection of the wound is responsible for the sloughing is an unsettled question. (3) Secondary hemorrhage. This sometimes occurs as a result of the temporary construction of the arteries in the field of operation, caused by the cocaine. The author sums up the advantages of the infiltration method of anesthesia as follows: (1) Removal of danger of death on the table; (2) avoidance of the after-effects of general anesthesia on heart, liver, kidney and lungs; (3) absence of nausea, vomiting and unconsciousness; (4) impossibility of drowning by fecal vomit; (5) the patient is conscious and can be of assistance to the surgeon; (6) the consent of the patient to the operation is more easily obtained; (7) the anesthetic is more agreeable; (8) assistants can be dispensed with.

The Treatment of Congenital Clubfoot and the Modeling Redressement.—In the treatment of clubfoot by modeling redressement, F. MÜLLER (*Med. Standard,* Feb., 1905) calls attention to one of the most important features in the proper care of the circulation. By the retardation or stopping of the circulation several types of disturbances are to be observed, which are as follows: Ischemic paralysis, gangrene and decubitus. To avoid these conditions care should be taken to avoid an improperly fitting cast, which must never cling to the limb too tightly, and it must be liberally padded. The cast, after setting, should be trimmed so that the knee-joint and the dorsum of the toes are entirely free. The author advises the casting of fenestra for the proper observation of the condition of the skin of the sole of the foot. With proper care the cast may be worn for six to eight months. After one week the patient should be allowed about on crutches, care being taken to prevent destruction of the cast from water, urine, etc., by proper covering. Very often it is necessary to perform tenotomy of the tendo Achillis or the tendons of the extensor muscles. The period of convalescence is materially shortened in cases due to paralysis of a group of muscles by proper tendon transplantation. After the case is removed a suitable brace (the author describing one) should be worn for a period of time depending upon the case.

Incontinence of Urine and Feces in Late Hereditary Syphilis.—There have been many instances of this affection reported, mostly isolated cases, but M. CANTONNET has collected twenty-one cases, several of which are his own, and has drawn the following conclusions (*Rev. Française de Méd. et de Chir.,* April 17, 1905). Incontinence of urine is sometimes the symptom by which is disclosed meningomyelitis caused by late hereditary syphilis. It is at times associated with incontinence of fecal matter. These two phenomena appear especially in degenerated subjects and those tainted with a neurotic history. They appear at all ages, but especially between the ages of four and twenty years. The lesions observed are those of a meningomyelitis affecting either the lateral or posterior columns of the cord; hence, there are two clinical forms: one with a diminution or abolition of reflexes corresponding to the last, the other with contractures and exaggeration of reflexes, corresponding to the first case. The medullary symptoms are always associated with the stigma of hereditary syphilis. The prognosis ought always to be reserved on account of possible cerebral and meningeal complications. The sphincter troubles are appreciably lessened by mercurial treatment. If the treatment is instituted early, mercury is well absorbed in all forms. According to the author the result is the same whether the ointment is rubbed in, the liquor of Van Swieten, Dupuytren's pills, or injections of biniodide of mercury are used. Subcutaneous injections or frictions are preferable. The addition of potassium iodide is useless. You must watch for stomatitis, arouse the child at night to urinate and not allow him to overcoat, but the all important consideration is the administration of mercury.

Interstitial Hernia. This form of hernia was first described by Bartholini in 1661, although in 1797 Petit gave a much more positive description of the affection. CHARLES G. CUMSTON (*Ann. of Surg.,* March, 1905) states that these herniæ were finally divided into three classes, viz.: (1) Properitoneal inguinal hernia situated between the parietal peritoneum and the fascia of the transversalis. (2) Interstitial inguinal hernia situated in the layer of the abdominal wall. (3) Superficial hernia found between the superficial fascia and the external oblique muscle. The term insterstitial hernia has been employed in a rather loose manner by many surgeons. A certain number of operators considering it to be properly limited only to that form of hernia which lies between the external and the internal oblique. The chief interest, however, centering upon the subject is to be found not in the subject of its technical phraseology, but rather in the fact that the lesion itself is one of a most serious nature. It is evidently more freely met with in the male. Out of 115 cases, collected by Gobell, only four were in women. This is a much lower percentage than is usually found in the ordinary type of hernia, which is generally credited to be about four times as frequent in the male as in the female. All cases of the interestitial variety of hernia, recorded up to 1904, have been associated with displacement or with some anomaly of the testicle. It is seen, therefore, that this had an important etiological bearing. An interesting conclusion is reached by the author, viz., that whereas in the male interstitial hernia has occurred during the period of life of maximum intra-abdominal pressure. In females the patients have in most cases been over fifty, and not a few of the cases reported have occurred in little girls.

Pathology and Etiology of the Diseased Prostate.—That most text-books present this subject in a crude and unsatisfactory, and indeed ofttimes in an absolutely faulty manner, is not to be doubted. PAUL MONROE PILCHER (*Ann. of Surg.,* April, 1905) states that the gland is essentially composed of two lateral lobes connected together in front of the urethra by the anterior commissure, and beneath the urethra by the posterior commissure. The prostatic urethra traverses the gland from base to apex a little in front of its middle. The cortex is made up almost entirely of non-striped muscular fiber with a small admixture of fibrous tissue. This comprises what is known as the capsule of the prostate. Outside of this is an indefinite sheet of fibrous tissue in which is located the prostatic plexus of veins. The organ is composed of stroma and glandular elements, the exact proportions of which vary. According to some authorities, the glandular elements make up from one-third to five-sixths of the substance of the gland. The gland consists of from 40 to 60 lobules of the alveolar type. Pilcher divides the prostates, which have to be removed because of urinary obstruction, into three classes. The one is greatly enlarged and is soft. The second is a relatively small contracted, hard prostate, and the third is a mixed form. It is interesting to note that gonorrhea was positively known to have been present in patients from whom all three types have been removed, so that this disease obviously is not to be considered as responsible for a constant type of prostatic lesion. The urethra is distorted, depending upon the size, direction and extent of the hypertrophy. The

atrophic form is not uncommon. The average amount of tissue operated upon in the series of 23 cases was about 250 grains. This is not far from the average weight of a normal prostate. These prostates are hard and firm, and the capsule is adherent. The surface of the gland is very irregular. The microscopical lesions of the hypertrophied prostate most striking is the relative and absolute increase in the amount of glandular tissue. All degrees of changes from the normal alveoli, formation of cysts and large adenomatous masses are seen. In the atrophic prostates two forms were observed. In the first the glandular elements were decreased and smaller than normal. The second form presented a combination of compressed glands which predominate, and a few dilated hypertrophied lobules. As to the etiology, a study of this series seems to the author to show that the hypertrophy was due more to glandular overgrowth, distorted and increased by the degenerative changes of old age, than to the influence of any extrinsic inflammatory agency. That gonorrheal infection is always, or even frequently a cause of the pathological changes is a theory which requires much more proof than it is at present supported by. In conclusion the author states that the contracted form of prostate is not a secondary stage of the large, soft type of hypertrophied prostate, but is distinct from it. In many cases of hypertrophy there is present a true muscular hypertrophy. In some of the atrophic cases, the glandular elements are relatively diminished, and the muscular elements relatively increased. Gonorrhea is not an important etiological factor in the production of this disease, and there is no reason for assuming it to be. The theory of obstruction to the ducts causing passive dilatation of the glandular elements, as advanced by Ciechanowski and Crandon, does not satisfactorily explain the pathological findings. Hypertrophy of the prostate results from glandular overgrowth influenced by the degenerative changes of old age and other ages which tend to produce the formation of fibrous connective tisue in an actively functionating and still useful gland.

The Bacteriology of Peritonitis.—It has for years been taught that the peritoneum is a vast lymphatic space endowed with great power of absorption. Whatever may he its capabilities in this direction in the normal condition, it is certain that when diseased, it can dispose of an astonishing amount of fluid. L. S. DUDGEON and P. W. G. SARGENT (*Lancet*, March 11, 1905) state the Wegner found that a dog's peritoneum is capable of absorbing in one hour an amount of fluid equal to from 3 to 8 per cent. of the animal's body-weight. This power of absorption probably accounts in a large part for the comparative safety of abdominal operations, for the peritoneum, as has often been said, performs its own toilet. It is no longer held that the cavity communicates directly with the lymphatic system, the stomata of the older writers having been shown to be histological errors. Most of the absorption takes place via the thoracic duct, but a portion of it passes directly into the blood stream. The paper dwells upon the influence of rest upon conductivity and upon arrhythmia due to depression of conductivity. In respect to independent ventricular rhythm due to heart, the writer states that independent rhythm can be demonstrated as a cause of certain form of bradycardia in the human subject. A careful analysis of their relationship shows that true auricular periods are less than one ventricular period, so that in the relationship of the auricular systoli to the ventricular systoli is a constantly varying one, sometimes at a distance, then gradually approaching till they are synchronous.

New Operation for the Relief of Flatfoot.—WILSON and PATTERSON (*Am. Med.*, May 6, 1905) present a favorable report of a new operation for flatfoot, which they have employed, consisting of an arthrodesis of the astragaloscaphoid joint and the transplantation of the tendon of the extensor proprius hallucis through a hole drilled in the scaphoid bone, and adaptation of Wolf's operation for paralytic valgus. The loss of function of the transplanted extensor of the great toe is but temporary and until the extensor brevis digitorum becomes educated to overcome the toe-drop. The after treatment is fully as important as the operative correction, and consists of well-adapted physical culture drills. This procedure has yielded better functional results than is possible by the use of arthrodesis alone. The combined operation for flatfoot now described for the first time, offers no serious difficulties, the additional damage to the structures of the foot necessitated by this procedure is inconsiderable, the time required for treatment not longer, and the results obtained more certain and satisfactory. It would, therefore, seem well to adopt the combined operation in all suitable cases.

MEDICINE.

Tuberculosis of the Tonsils.—G. B. WOOD (*Journal A. M. A.*, May 6) has investigated questions of the liability of the tonsils to tuberculous infection, and the effects of such infection on the production of tuberculosis of other organs, and of the system generally. He reviews the statistics and literature, and to confirm the opinion that the tonsils are specially vulnerable, he experimented by swabbing the pharynges of guinea-pigs and swine with virulent cultures. The former have practically no tonsils, while the latter are well supplied, and the results confirmed the view. The general, more important facts derived from his study are summarized by him in substance as follows: The tonsillar tissue of the throat, from its anatomy and its topographic relations, is more liable to tuberculous infection than any other part of the upper respiratory tract. In nearly all cases of advanced consumption the faucial tonsils become involved. In about five per cent. of hypertrophied pharyngeal tonsils some form of primary tuberculosis will be found. Primary infection of the faucial tonsil is more rare. Cervical tuberculous lymphatic adenitis in most cases develops from infection of the faucial or more often of the pharyngeal tonsil. The tubercle bacillus is probably unable to pass the tonsils without first overcoming the vital resistance of the tonsillar tissue. The danger of systemic or lung infection from tuberculosis of the tonsils is about equal to that from tuberculosis of the cervical lymphatics. The resultant disease to be expected from infection of broken-down glands of the neck is miliary tuberculosis of the lungs. Beyond this possibility, tuberculosis of the cervical lymph glands is no more dangerous than any other localized tuberculous lesion. The tonsils are more resistant to bacterial toxins than is ordinary lymphoid tissue.

The Vibrating Sensation and its Clinical Value.—It has long been known that peculiar vibratory sensation is transmitted from the base of a tuning fork, the prongs of which are in rapid motion, if it be applied to the styloid process of the ulna or to any subcutaneous bone. Egger, Rydel, Goldschneider and others have said that the vibratory sensation is always present in health, and is usually absent when other forms of sensation are lost owing to the disease of the nervous system. R. T. WILLIAMSON (*Lancet*, April 1, 1905) states that in the examination of a large number of cases

of nervous diseases, and of diabetes, he has always employed the same tuning fork, a large one six inches in length. He has used the following points for observation, viz., styloid process of ulna; internal malleolus; inner surface and anterior edge of tibia; anterior superior iliac spine; middle of the sternum. His results, briefly stated, were as follows: In 50 healthy men the vibrating sensation was distinctly felt on both sides. Of 200 medical cases examined, 80 suffered from the disease of the nervous system, 45 from diabetes mellitus and the rest from scattered diseases. As a result of the study of these cases, the author reaches the following conclusion: (1) The normal condition of the vibrating sensation, tested in the manner described, is probably always present at the three points mentioned. (2) In early tabes it may be lost in the legs before impairment of other forms of sensation occurs and before ataxia of Romberg's sign can be detected. (3) In certain cases of spastic paraplegia it may be lost in the legs when other forms of sensation are not affected. (4) In some cases of diabetes mellitus and chronic glycosuria, it is lost when sensation in other respects is normal. (5) From these facts it is evident that sensation cannot be declared to be normal until the vibrating sensation has been tested.

Combination of Radiotherapy and Organotherapy.—In order to determine to what extent organic preparations may be rendered radioactive by exposure to this substance, V. Poehl and V. Tachnoff (*Berl. klin. Woch.*, April 17, 1905) made a series of experiments with spermin, ovarin, thyreodin, cerebrin, etc. A method was at first devised by means of which absorbent cotton was rendered radioactive, the air being forced through the cotton after it had been in contact with a solution of 1-1,000 radium bromide solution. In about half an hour this cotton is strongly radioactive, and if placed in contact with any one of the various organo-preparations, it imparts its radioactivity to the latter. Tests showed that the mammin seemed to be the most sensitive. It is claimed that these organic products exert a selective influence on the same type of organs from which they are originally obtained, so that it seems possible that the radium emanations may thus be made to exert their effect on these same organs. Clinical experiment with the preparations is now desirable.

Tuberculosis Vaccination Upon Cattle Infected with Tuberculosis.—Among the means which have been proposed for controlling the spread of tuberculosis among cattle, is vaccination. While engaged in such experiments, L. Pearson and S. H. Gilland (*Univ. Penn. Med. Bull.*, April, 1905) had the opportunity of testing the effect of vaccination on some young cattle already infected with tuberculosis. This treatment seemed to have a decided effect on the course of the disease, six animals thus treated being favorably influenced, the process being kept in check, and in three animals undergoing a retrogression. That is to say, the treatment exerted a distinctly curative effect. These experiments do not justify conclusions or inferences as to the probable effect of similar treatment on older or more extensively diseased animals, until further observations on a larger scale are at hand.

Syphilitic Lesions in the Bones of the Mound Builders.—An interesting contribution to the history of syphilis is to be found in an article by S. T. Orton (*Univ. Penn. Med Bull.*, April, 1905), who has made a careful study of specimens of bone obtained from mounds in Ohio, which seems to confirm the fact that this disease was present on the American continent at an early date. The origin of the material is from a source undoubtedly pre-Columbian, and the lesions are such as to justify the diagnosis of syphilis by the following pathological evidence: Changes affecting chiefly the diaphyses where long bones are concerned, showing a predilection for those bones which are most exposed to trauma, consisting of large exostoses and osteophytic overgrowths, and characterized by the concurrence in the same specimen of both a rarefying and condensing osteitis, as demonstrated by gross and microscopic examination. Of 127 skeletons from one series of excavations, 21 showed traces of disease. Sixty per cent. of those affected showed the disease most marked upon the tibia, with the ulna, cranium and sternum following in order. A rarefying osteitis was present in all but two specimens.

The Misuse of Hydrotherapeutic Measures.—Mistakes in the application of such measures are believed by Winternitz (*Berl. klin. Woch.*, April 10, 1905) to be the main reason why this branch of therapeutics has not been more favorably received by the medical profession. The necessary requirements he sums up as follows: (1) A careful analysis of any deviations from the normal in the organs or their functions, *i.e.*, a careful clinical history; (2) a knowledge of the physiological action of thermic and mechanical stimuli; and, (3) a thorough knowledge of the technic of the procedures. In febrile diseases the choice of the temperature of the water is entirely dependent upon its action on nerves, vessels, and tissues, and it is a great mistake to use, at the beginning of the treatment, water at a very low temperature applied for a short time only and accompanied by only a slight amount of mechanical stimulation. Such baths should be merely cool, long continued and followed by sufficient mechanical stimulation. In cases of collapse and cardiac weakness, where there is a high body temperature and cold extremities, it is necessary to apply cold to the trunk, but the extremities must be warmed by rubbing with warm alcohol or the application of hot packs. In administering sitz baths, care must always be taken to guard against the loss of heat from the uncovered parts of the body. It is essential that each case be studied on its individual merits, and the writer believes that the art of acquiring this habit can only be gained from a well-managed hydrotherapeutic clinic.

Diagnosis of Banti's Disease.—In an interesting discussion before the Hamburg Medical Society, Simmonds and Umber (*Münch. med. Woch.*, April 18, 1905) express some entirely new views concerning Banti's disease. Not every condition associated with hypertrophic cirrhosis of the liver and very large, hard spleen can be called a Banti, for syphilis, malaria, and other infections may produce the very same lesions. There is as yet nothing characteristic for Banti's disease clinically, and even at autopsy the changes in the spleen have not been found at all constant. This is to be deplored the more since the treatment of this disease and cirrhosis of the liver are altogether different. Recently, however, Umber has made very careful studies of the metabolic activity of the body in both conditions with positive results which will now enable an accurate diagnosis. In true Banti's disease, there is a progressive loss of nitrogen, that is, the body excretes more nitrogen than it takes in. The spleen here acts as a toxic agent, and these cases will invariably do well if this organ is removed. Another patient may present the same splenic and hepatic enlargement and general symptoms; by careful analysis of the urine and the feces it can, however, be shown that there is no loss of nitrogen. This patient will not be benefited by a splenectomy, and, hence, must be classed among

cirrhosis. This type of cirrhosis has recently been termed Banti's cirrhosis.

Senile Anemia.—A peculiar form of anemia has been observed by O. KURPJWEIT (*Deutsch. Arch. f. klin. Med.*, Vol. 82, Nos. 5 and 6). From the history of two cases quoted in full, it can be seen that the characteristic symptoms are progressive emaciation and pallor, coupled with high temperature of intermittent or continuous type. The spleen is enlarged; the stomach contents lack free acid, and the urine generally contains urobilin and kidney elements. The number of red cells is in proportion to the percentage of hemoglobin, but poikilocytosis and other changes are slight or absent altogether. The leucocytes are markedly reduced in number and the lymphocytes usually form the most abundant elements. At autopsy, subserous hemorrhages are often found, together with cloudy swelling of the heart muscle and hemosiderosis of the internal organs. The bone-marrow shows a marked atrophy with occasional hemorrhages and necroses, such as are not seen with typical pernicious anemia. The author classifies these forms of anemia among a plastic anemia, since the absence of nucleated reds, the diminution of leucocytes and the autopsy findings speak for an entire absence of regenerative power on the part of the bone-marrow.

Action of Baths on Heart and Vessels.—During every bath the systolic blood-pressure first rises, then falls, and finally rises a second time. The depression is generally most marked and constant, and after the bath a second depression may usually be observed. With cold baths the initial rise is more pronounced; with hot baths the secondary rise. A temperature of 90° or 95° F. causes the least marked fluctuations; below this the pulse is slowed, above this, accelerated. The diastolic blood-pressure is subject to the same laws, but does not run absolutely parallel with the systolic. Cardiac action is very much stimulated in baths at 104° F., only slightly stimulated in baths from 90° to 104° F., and somewhat depressed below 90° F. With carbonated baths the curve of the systolic pressure presents the same peculiarities: the pulse is slowed less during the bath, and more after the bath, and the volume of each cardiac contraction is considerably increased. J. STRASBURGER (*Deutsch. Arch. f. klin. Med.*, Vol., 82, Nos. 5 and 6) concludes that hot baths demand more work from the heart in every way, while cool baths may be looked upon as inducing cardiac exercise, with conservation of cardiac energy. Carbonated baths behave like digitalis, without, however, causing contraction of the vessels.

PATHOLOGY AND BACTERIOLOGY.

Nature of Fatty Degeneration.—Ever since the days of Virchow it has been customary to look upon fatty degeneration of the kidney as a very common lesion which accompanies almost every change in the renal tissues. Recently, however, attention has been drawn to the fact that the chemical examination of kidneys which were pronounced fatty to a marked degree by microscopic examination frequently did not show an excess but rather a deficiency of fat. The explanation offered by M. LÖHLEIN (*Virchow's Archiv*, Vol. 180, No. 1) is that many of the highly refractile granules seen within the epithelial cells of the renal tubules are not really fat but a modified proteid called protagon. This protagon reduces osmic acid like fat if mixed with a small amount of lecithin; hence, will pass for fat in specimens hardened in Fleming's or Herman's fluid. In fresh specimens one may, however, distinguish the two substances with ease, since protagon is anisotropic, but fat isotropic. The author has examined a large number of kidneys, and comes to the following conclusions: Fatty infiltration of the kidney is an accumulation of true fat within the epithelial cells of the tubules. The epithelial cells themselves do not suffer by this, and albuminuria does not occur. Fatty degeneration, on the other hand, is due to a less pronounced accumulation of fat, together with a crystallization of protagon within the epithelial cells. The latter are considerably damaged, and albuminuria is the rule. An instance of fatty infiltration of the severest grade is phosphorus poisoning, and it is a significant fact that albuminuria is often absent, at least in the earlier stages.

Experimental Hydramnios in Nephritis.—It has been shown that a condition of acute nephritis and ascites could be experimentally produced within a few days in animals, by the subcutaneous injection of uranium nitrate, at the same time giving them large amounts of fluid. E. BIBERGILL (*Berl. klin. Woch.*, April 10, 1905) publishes another contribution to this subject in which he states the results of his observations in pregnant rabbits where the uranium injections had been made. Wolff had already produced artificial hydramnios in rabbits by extirpating both kidneys, and the present writer sought to attain the same results by the uranium injections already noted. In two animals it was found that there was not only a marked increase in the amounts of the usual transudates in the pleural and peritoneal cavities, but the quantity of liquor amnii was also increased. The fetuses also showed evidences of nephritis, and in one instance there were fluid accumulations in every one of the eight fetuses and the urine in their bladders was albuminous. It is evident, therefore, that the uranium injections produced nephritic changes even in the embryos. Glucose was found in the maternal transudates, and also in traces in that of the fetuses. In order to explain the increased amounts of fluids which led to the condition of hydramnios, a larger series of animals would be required than were made use of in these experiments, the author's object merely being to show the possibility of producing a hydramnios when a nephritis is present in the mother.

Lymphatic Tissue in the Urethra.—Since lymphoid cells have not been described in the urethra and their occurrence is quite common in other mucous membranes, D. BUSCH (*Virchow's Archiv*, Vol. 180, No. 1) made a large number of serial sections of all the urethra he could obtain at autopsy. In two newborn infants no follicles were found, but in all other children and adults examined the search was positive. The amount of lymphoid tissue varies very much; sometimes the entire canal is surrounded by it, while in other cases only two or three nodules are found. A limiting membrane is usually absent, but germinal centers are common, and emigrated leucocytes frequently invade the tissues. The parts examined were in all cases the terminal portions of the urethra, since the occurrence of lymphoid tissue higher up in the genito-urinary tract has been demonstrated before. The follicles are not pathological, but probably undergo hyperplasia in various conditions.

A Multiplex Slide-Holding Device.—To facilitate the rapid staining of large numbers of paraffin sections and to minimize the waste of stains, reagents,

etc., E. F. Miller (*Johns Hopk. Hosp. Bull.*, April, 1905) describes an apparatus which seems to meet all requirements for the rapid staining of sections. The author claims the advantages to the apparatus to consist in: (1) Twenty-six slides bearing paraffin sections may be stained and mounted with but a slightly greater expenditure of time than is consumed in staining and mounting a single section. (2) There is a great saving in the quantity of reagents used. (3) There is no danger of injuring the sections. The entire series can be mounted without the loss of a single section. (4) The staining of the entire set is absolutely uniform, a result impossible to obtain by the old method. (5) The apparatus is so constructed as to be, with ordinary care, almost indestructible. (6) By the use of this holder it may be possible to give classes in microscopic anatomy sections stained by the more complex methods owing to the economy of time and reagents.

The Morphology of Cancer and the Parasitic Theory.—In a long paper on this subject, J. Orth (*Berl. klin. Woch.*, March 20, 1905) discusses the various theories with regard to the parasitic theory of cancer, and sums up the objections to the same as follows. The essential factor in all cancers, primary as well as secondary, are the cancer cells, without which metastases cannot occur. In order to account for the formation of the latter, we need not assume the existence of parasites, for cancer cells which are capable of proliferating, are all that is necessary. An analogy between cancer metastases and metastatic suppurations, tubercle formation or other infectious processes cannot be established, and the question of analogy cannot be made use of to account for the parasitic nature of cancer. The successful transplantation of cancer from one individual to another, can be accounted for without having recourse to the parsitic theory, by assuming that this is a metastatic deposit of cells in another organism which forms the nidus of a new growth. None of the parasites which have thus far been described, afford sufficient basis for a scientific theory, or, in other words, the parasitic theory as far as the cancerous growths are concerned, is still in the air.

Pharmacology of Camphor.—Experiments made by E. Seligmann (*Arch. f. exp. Path. u. Pharmak.*, Vol. 52, No. 5) upon the action of camphor upon the blood-pressure, were on the whole not conclusive. If the blood-pressure of the animals experimented upon was reduced by means of chloral, camphor subsequently injected, had no effect or else brought about a slight rise or fall. Slight fluctuations, are however, common with chloral alone. Dilute solutions of camphor, allowed to circulate directly through the heart, will sometimes show a decided stimulating effect, but more frequently no influence could be observed. One action, however, is fairly constant: if the heart of a warm-blooded animal has ceased beating and simply flickers, camphor will almost invariably bring about a return of coordinated contractions. It is possible that this will explain the stimulating action of camphor in severe collapse, though the conditions are very different in the living body.

PRESCRIPTION HINTS.

General and Symptomatic Treatment of Locomotor Ataxia.—(1) Avoid carefully all physical and mental exertion, also alcoholic and sexual excess. (2) Every day on arising administer friction along the vertebral column by means of a horse-hair glove.

(3) Take every other day at the beginning of each meal one of the following pills:

℞ Pulv. capsicum ..... gr. ii
Pulv. ergot ..... gr. v
Pulv. liquorice ..... gr. x
Honey ..... q.s.

Ft. in one pill No. xxx.

(4) During the alternate days of the month, take in a glass of milk one or two teasponfuls of a solution of the iodide of potassium or strontium:

℞ Iodide of potassium ..... gr. xx
Water ..... gr. 250

(5) Spend some season of the year at the seashore. (6) Give mercurial medication if the origin of the disease is syphilitic.

To combat the lightning pains, give one or two of the following capsules:

℞ Phenacetin ..... gr. xx

If the pains are very severe, use hypodermically one cubic centimeter of the following solution:

℞ Chlorhydrate of morphine ..... gr. x
Chlorhydrate of cocaine ..... gr. v
Distilled water ..... ʒi

To counteract the urinary and ocular affections, give two pills per day as follows:

℞ Extract of belladonna ..... gr. iii
Extract of gentian ..... gr. v
Powdered liquorice ..... gr. x
Honey ..... q.s.

Ft. in one pill. No. xx.

Keep the bowel movements active, either with glycerin enemata or by taking one of the following pills:

℞ Podophyllin ..... gr. ii
Cascara ..... gr. x
Honey ..... q.s.

Ft. in one pill. No. x.—(Malbec.)

Treatment of Grippe.—The following treatment is recommended by Professor Lemoine: Severe hygiene, isolation, during the course of the disease remaining in one's room. Antiseptic irrigations for nose and mouth. (1) Gargle the throat three times a day with hydrogen peroxide (1-10); (2) Place within the nares, morning and night, some of the following ointment:

℞ Vaselin ..... 20 grm.
Salophène ..... 2 grm.
Oxide of zinc ..... 2 grm.

(3) Wash out the mouth with Eau de Phenique (25 parts to 1,000). Placing a teaspoonful in a glass of lukewarm water. (4) If any catarrh of nose or throat is present, treat with the following:

℞ Phenosalyl ..... gr. l
Sodium chloride ..... 3 grm.
Distilled water ..... 500 grm.

(5) Purge abundantly with saline cathartics.

Antipyrin in capsules so that 50 grains are taken in the day at four hour intervals, or it may be given in solution.

If much fever is present combine quinine with the antipyrin. If bronchitis occurs as a sequel, or is combined with the disease, cause counter-irritation upon the chest by means of cupping blisters or mustard plasters. Prescribe alcohol to combat the fever, and give an active purgative when the disease has ended.

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OF MEDICAL SCIENCE.

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MEDICAL REUNION ONCE MORE.

It is appropriate to announce, now that springtime is in its full tide, that cards are out for the union of the New York State Medical Association and the Medical Society of the State of New York. It seems to be quite as important with regard to the union in this case that the signatures should be made before witnesses as it is for the other case with which the natural analogy so readily suggests itself. As a matter of fact, unless the signatures to the present cards are made in the presence of witnesses, whose names are also signed thereto, there will be doubt as to the legality of the procedures preliminary to the union. It is this point that the Committee of the Medical Association having the matter in charge, for their part, find it difficult to impress upon fellow members. All cards returned unwitnessed will have to be sent back for witnessing if the legality of future action is to stand the test of judicial decision.

The action of the State Medical Association in thus taking steps to hasten the reunion, with the Society, seems thoroughly deserving of commendation. The committee might have waited until the regular annual meeting in October, and then, having secured the passage of the by-laws which were presented at the last annual meeting, proceed to settle all questions as to reunion at a special meeting to be called later. As the regular annual meeting of the State Society occurs in January, however, there will not be very much time for the necessary action, consequently the issuance on legal advice of the present cards, in order to secure a formal consent of all the members of the Association to immediate action, looking to consolidation, at the regular annual meeting of the Association in October.

There is all the more reason for this expedition because the Medical Society of the State of New York celebrates next year the hundredth anniversary of its foundation, and no more fitting feature of that celebration could be suggested than the announcement of the completion of all the steps for the reunion of the two medical organizations which, in New York, have unfortunately divided the medical profession in the Empire State, weakened its influence for good, and diverted some of the efforts that might have been devoted to the suppression of the many medical abuses that are rife, to the mere internal affairs of the two organizations. With the reunion will come the assertion of the New York profession's influence, without any drawbacks. The Empire State will then take its place quite appropriately high up in the councils of the American Medical Association, and the New York Medical Society, properly recognized, will be acknowledged as the mother of that organization.

It hardly seems possible that there should be members of the medical profession in New York in good standing in either of the medical organizations who still continue to harbor any objections to the reunion. This same impression, however, existed last year, and yet there were found a few disgruntled ones, who succeeded in searching out a legal quibble that prevented the much-desired union that had been planned and worked for so long. It must not be forgotten, however, that the medical profession will not readily accept declarations that such action is any longer to be considered as taken in good will. Reunion is desired by an overwhelming majority. There are no disadvantages to be foreseen from it; there are many advantages that will surely result. All those members of both organizations, who have it in their power to do anything to further the assurance of speedy reunion, must take what steps they can for that purpose. As to the members of the Association, the request to return their proxies properly signed and witnessed, is only the formal step

for the absolute assurance of reunion at the next annual meeting, and should be attended to at once.

"LUNGS THAT CROW LIKE CHANTICLEER."

In the good old colonial days when the God-fearing, law-abiding elder could not wend his uninterrupted way to the Sabbath meeting without having his skin punctuated with arrows until his voluminous anatomy resembled a war map of the far East, it was customary for men to combine two avocations in life. At that time the lugubrious undertaker manufactured by hand more claw-footed, straight-backed furniture than he did coffins. The surgeon, if he had the requisite manual dexterity, was often the village barber, while the composite sign "needles and grindstones" was not infrequently displayed over the open door of the country store.

Now, however, we have the era of specialism, when a man does but one thing, and frequently only a part of that, so it is as refreshing as a crisp, salt breeze across the sun-baked flats to meet with a man who has something to say and who boldly introduces himself to the tuberculous public as Edward Beckham, "College graduate and longshoreman." The gospel preached by this amphibious evangelist is startling in conception, if not new in application, and might have originated in wonderland with the world turned upside down. For he says, "I have discovered that a man is simply an inverted plant. Hair is to man what the roots are to a plant. Air and light are the soil from which mankind draws its energy."

Now, this theory, which seems to be the text of a long and rather rambling interview with this collegiate roustabout, is not strictly original with Mr. Edward Beckham. For Delilah many years ago seems to have been possessed of an innate faith in the efficacy of a modern "hair cut" as a means of accomplishing her fell purpose, while the hirsute Southerland Sisters claimed not only that their course of treatment would increase and beautify the crown of woman's glory, but would indirectly remove and do away with every ill that female flesh is heir to. Moreover, it is a well-recognized fact that men who constantly wear hats are much more addicted to baldness than are women, and there are few of the passing race of negro "aunties" who are now dying at the tender age of one hundred and eight and a hundred and ten years of age who are not blessed not only with personal recollections of George Washington and Lafayette, but also with an ample crop of wool in the place where the wool ought to grow.

But our "discoverer" seems to have gone farther afield, and having, as he says, reaped the benefits of his system, is now anxious to impart it to others. During his college course, he states he became the victim of consumption and after his graduation he entered a hospital in Philadelphia for the treatment of tuberculosis. While there he noticed, he continues, that the hair of consumptives stopped growing and turned gray at the tips. So he concluded that this had some connection with the origin of the disease. This idea becoming firmly imbedded in his mind he let his hair and beard grow until he resembled a cross between a second-rate Russian Admiral and a first-class wild woman of Borneo, and adopting an outdoor life, passed rapidly from practising his theories to preaching them.

This, however, is purely a natural transit. The proselyting diathesis is strong in most of us and when to this is added an ardent and entirely sincere belief in our own doctrines we are apt to endeavor to adapt them to the world at large, forgetting that in medical matters, as well as in the question of food supplies, one man's meat may be another man's poison. Then, too, one's personal convictions may not be the same, even when they have been founded on similar experiences, and we doubt if the shades of Samson and Absalom, in looking back over their mundane career, would agree on the question as to what the proper length for wearing the hair might be. Charles II., with his cavaliers, also would hardly share the opinion of Cromwell and his close-cropped adherents; while the ghost of Esau would probably add to his other regrets that he was unconscious while on earth of his immunity to consumption and pneumonia.

For this curing of pulmonary disease by permitting the beard and hair to grow seems to be the *motif* of Mr. Beckham's rhapsody and its beauty draws him, like most socialists, with more than a single hair. Clustering locks, he declares, "supply the ether which is the nutriment and energizer of the entire brain and nervous system" and all that is necessary to "eradicate consumption" is the total abandonment of scissors and razor. From this point on he proceeds with all the energy, and a great deal of the traditional result that characterizes the lawyer who has himself for a client, to draw deduc-

tions from his own case. Prostrated by phthisis he abandoned the life of an educated man; he let his hair and beard grow; lived out of doors without a hat, recovered, and to-day is a giant.

All this sounds well in the narrating and looks even better in print, but luckily for Mr. Beckham, he is in the position of the Elder in the New England Conference Meeting where it is not "etiquette" to propound questions, or to "answer back." For there was no one, it seems, to ask him if he could not have recovered under the healthy influence of his out-of-door life without giving free rein to his hair and beard, or to suggest that if his hair was producing "ether," which was to be nutriment to his brain, why it was not better, like the miller with the white hat, to cover his head. Ethers are weakened by admixture with the ordinary atmosphere, and if this peculiar organic chemical combination was to "energize" the lungs after having keyed up the entire nervous system, it was hardly fair to cripple it at the start.

Nor do we hold, with Mr. Beckham, that the tide of fashion has turned and that hyacinthine locks will again grace the heads and grease the collars of the Gibson men to come. But if this quasi longshoreman, as he intimates, is intending to woo some fair Parthenia as a celebration of his recovery, we earnestly advise him to hie himself to a barber shop and to emerge looking less like Ingomar and more like thirty-five cents. Let him also remember that "Iris cut the yellow hair of Dido and broke the charm," while it was surely a modern Goth who chanted

"From long-haired men and short-haired women
Good Lord deliver us."

THE PROTECTION OF THE ROENTGEN-RAY OPERATOR.

The serious nature of the injuries which have been recently inflicted on two expert Roentgen-ray operators, and which necessitated the amputation or partial amputation of both hands, should be sufficient warning to all engaged in the employment of this powerful agent. A further word of caution seems necessary, however, as many operators, who have had no experience, are entering the field.

Charles Lester Leonard (*Journal of the American Medical Association*, May 6, 1905) explains the use of a few original devices for the further protection of the operator against the influence of the rays. The claim made by the manufacturers that the static machine is without danger, is erroneous. The X-ray itself is the dangerous agent, and wherever present must be guarded against. "The injury is done slowly and insidiously. There is a gradual accumulation of injurious effects, and when the lesion manifests itself it is in chronic form, with the formation of slow, indolent ulcers, and horny, corn-like growths on the dorsal aspect of the fingers, and cracking and brittleness of the nails." The process continues as long as the tissues are exposed to the cumulative action of the rays. Recovery is tedious or a true malignant growth may develop on the lesion.

Because the lesion develops slowly the victim feels secure, complete relief or protection from the rays after the initial injury is insufficient to arrest the disease. "The acute dermatitis produced on the patient does not possess the elements of danger found in the operator's chronic trophic lesion. There is practically no danger to the patient who is exposed a few times for diagnostic purposes." The lesion does not develop in the operator until after two or three years of constant exposure. "The production of malignant disease in the hands of operators by this agent leads to the conclusion that malignant disease can be produced by the overstimulation of protracted irritation of normal tissue cells by this agent."

The operator must constantly observe the tube while in action without exposing himself to the irradiated field. This can best be done by covering the tube, excepting where it is desired to have the rays emerge. The author describes his device for protection as follows: "A pasteboard box three-eighths or one-half inch wider than the diameter of the tube is cut at the ends to admit the tube. There is a round opening through which the prolongation of the cathode end can extend and another at the anode end, which can be reached by a cut through the intervening pasteboard. The box is suspended from the ends of the tube and surrounds only the bulb. It can be held in place by rubber bands or cord. This box is covered with X-ray foil, a heavier lead foil than the ordinary tea lead.

"It is only necessary to cover the irradiated portion of the box, *i.e.*, the luminous hemisphere of the tube. The lead surrounds the box and extends two inches below the bottom in flexible curtains, that can be so adjusted that the irradiated field can be limited to any extent. It is not necessary to cover the anode end or that portion of the sides behind the plane of the anode. At the cathode end the lead must be cut away one

and one-half inches from the cathode prolongation, where it passes through the box. Where the lead hangs below the bottom of the box it is cut at the corners and thus forms three flexible curtains. The bottom of the box is removed so that in adjusting it the operator, by looking over the anode, can limit the irradiated field to any desired area by bending the lead curtains in or out. Where it is necessary to use the fluoroscope, the operator should stand behind a screen of thick lead with an opening corresponding with the size of the screen of the fluoroscope, which should, in turn, be covered with a plate of glass one-fourth inch thick.

"For the treatment of Roentgen-ray dermatitis, the hands should be washed and soaked in water as hot as can be borne. It will be found that they gradually accustom themselves to very high temperatures, and that the temperature of the water can be gradually increased. The hands should be scrubbed with a sterilized brush, using Eichoff's superfatted resorcin soap. This will be found very soothing. After thorough washing, the hands should be well rubbed in an ointment of lanolin containing one-half ounce of boracic acid and one dram of resorcin to the ounce. This should be done both morning and night and the hands should be washed in hot water with the superfatted soap. Simple superfatted soap or soap and lanolin can be used if the resorcin is too severe, with the substitution of benzoic acid in the ointment.

"The thickened epidermis and horny growths, with the indurated edges of the indolent ulcers, can be softened by covering them with ointment under oiled silk. The softened epidermis then should be gently removed. The ointment should be renewed after each washing. Small healing ulcers that have become healthy can be covered with surgeon's isinglass plaster, after the hands have been washed and anointed; these ulcers often take from four to six months to heal and may cause intense pain."

ECHOES AND NEWS.

NEW YORK.

Death-Rate in New York.—The lowest death rate for this season of the year in the history of the Department of Health was that for the week ended Saturday. It was 16.11 per 1,000. The lowest record hitherto was in May, 1900, when it was 16.74. For the corresponding week last year the rate was 17.19. There were 60 deaths due to spinal meningitis and 172 to pneumonia.

Tuberculosis Sanitarium Vetoed.—Despite the efforts of Dr. Thomas Darlington, president of the New York City Board of Health, to secure permission to locate a tuberculosis sanitarium on the top of the Shawangunk Mountains at Bloomingburg, the Town Board of Mamakating last week decided, by a vote of 4 to 2, against the project. Dr. Darlington was ably assisted in his efforts to locate the sanitarium by Dr. Hermann N. Biggs, general medical officer of the New York Board of Health and president of the National Association for the Study and Prevention of Tuberculosis. These men have worked strenuously to secure a location, but their efforts have failed, and it is said they will now turn their attention to Orange county.

Insanity in New York.—According to the State Charities Aid Association's twelfth annual report to the State Commission in Lunacy, insanity in New York State has increased on an average 738 cases a year for the last nine years. Last year's increase was 927, the total number of commitments having been 26,861. So marked has this condition become that there are 3,017 more patients than the fourteen State hospitals can accommodate, which means overcrowding to nearly fourteen per cent. for the entire State hospital system. The report says: "Some of the conditions which have led to the large accumulations of the insane in institutions are: The good care now furnished, which arrests the progress of disease, protects the patients from exposure, and lengthens their life; the good reputation of the institutions for the insane, and public confidence in their work; and the general progress of medical science, which protects the community from the ravages of disease, gradually lowers the death-rate and keeps alive many persons of weak constitution, who, in former years, would have died in childhood."

Brooklyn Tuberculosis Clinic.—The Brooklyn Department of Health was enjoined last week by Justice Marian, of the Supreme Court, from establishing a clinic for consumptives at No. 75 Henry Street, Brooklyn, until the action brought by Mrs. Barbara Schloerb against the health authorities is tried. The case will not be reached until next fall. Gen. Horatio C. King, who, with Lawyer J. W. Jacobson, appeared for Mrs. Schloerb, declared the Health Department should not have chosen a location in a populous district, but a site on Liberty Street or lower Fulton Street, to which there would have been no objection. The clinic, he said, might just as well be placed next door to the Hotel St. George or on Columbia Heights as on Henry Street. Commissioner Darlington, in an affidavit, said the dispensary is intended to prevent the spread of tuberculosis, and would decrease the disease by educating sufferers as to the proper sanitary precautions. No harm has come, he said, from the sanitarium on Sixth Avenue, Manhattan. The Brooklyn clinic, he declared, is not intended to be a hospital, but simply a dispensary where victims of the disease might have their cases diagnosed and received advice. He declared it could in no way endanger the health of the community.

Boarding Out of Insane.—Another important matter discussed by the aid association concerns the "boarding out" of insane persons in private families. It is suggested that both humanity and economy argue in favor of the adoption of this system for certain classes of insane. The plan advocated is that those who are harmless and quiet be selected; that the homes where they are placed shall be within fifty miles of the hospital from which they are taken; that the patients thus transferred shall remain under the supervision of the superintendent of such hospital, and that the cost of their maintenance shall be paid from the funds appropriated for the care of the insane. Much dissatisfaction is expressed by the association with the method of deporting insane aliens, and the charge is made that

many of them do not reach their homes. "The conviction is inevitable," says the report, "that the methods of deportation are not such as to afford to the patients proper care and protection or to do justice to their friends and relatives." Cases in point are quoted and these recommendations are made: State hospitals should notify friends of patients who are to be deported in time to allow the former to provide clothing and see them off, and should obtain names and addresses of relatives of the patients in Europe, send the latter the proper information, and also notify the Immigration Department, which should establish rules to meet the situation.

Medical Supervision in Public Schools.—At a recent meeting in this city of the Medical Inspectors of the Health Department and others in interest, Dr. John J. Cronin, Chief of the Division of Medical School Inspection under the Board of Health, gave some facts respecting the work now in progress which are likely to have great public interest. "The importance of this work," writes the *New York Times*, "not merely with reference to the welfare of impaired and infected children, but equally with reference to that of the normal and healthy children, is so evident as not to need explanation. It should have the cordial and sympathetic co-operation of parents. The physical examination conducted by the Health Department's School Inspectors, all of whom are now physicians specially trained in this work, is very comprehensive. Special attention is paid to the child's nutrition, to cardiac derangements or pulmonary diseases, nervous affections, deformities of limbs or spine, and to throat and nose affections. It is hoped that any tuberculous diseases that may be detected will be properly cared for either privately or in public institutions, and that tuberculous children will be taught separately from healthy children. Children with heart disease disease need to be dealt with gently, and should be educated as much as possible for a mental or light skilled manual occupation. Care is taken that such children be not allowed to take part in athletic games or other forms of severe exertion. Children with St. Vitus's dance and other nervous affections need special medical and educational treatment and should be taught in classes arranged for them. Normal children imitate nervous symptoms very quickly. Deformities of the limbs are often corrigible if detected early, and grow worse if neglected. Adenoid growths and large tonsils are not only dangerous to the child's health, but also retard his mental development. By notifying the parents of the existence of any of these conditions the department hopes to place every child so far as possible upon the best physical condition to pursue his studies. Perhaps the greatest good accomplished by this work is in the detection and correction of defects of vision in school children. The Inspectors found within the past few months that about one-third of all children in the schools have defects of vision interfering with their studies. Of these a large number already have procured glasses. This has resulted in a noticeable improvement in their work at school, as shown by the teachers' reports. The reason why so many children have been found backward in their studies as related to their age is that there are so many with physical defects, such as deficient vision or hearing, who are unable to keep up with normal children and retard the progress of the classes. Physical defects of one sort or another are also a fruitful cause of bad habits, of truancy, and of moral obliquity in later life. It is said to the physically defective who either leave school prematurely or become hopeless truants. Truancy is the first stage of a criminal career, and by improving the physical condition of children many may be saved for lives of usefulness. It is as hard for a truly healthy child to do or think wrong as it is for a child defective in body or mind to do or think right. An eminent criminologist has said that man is responsible for the good that he does, while for the bad we must hold accountable the diseased conditions of his body or mind. This interesting and beneficial work should be developed systematically from year to year, and sufficient appropriations should be made to insure that it is thorough and continuous.

PHILADELPHIA.

Neurological Society Gives a Banquet.—The American Neurological Society closed its annual session with a banquet at the Bellevue-Stratford Hotel. Sixty members attended, and Dr. William Spiller, President of the Society, was toastmaster. Dr. S. Weir Mitchell spoke at some length on the possibilities of the profession outside of their medical field.

Seeks the President's Aid.—Food Commissioner Warren went to Washington this week to lay before the President a set of complaints against Federal officers of this State. The chief complaint which Dr. Warren has to make involves an officer from the eastern part of the State, who, when authorized to buy butter for Government use, deliberately substituted oleomargarine. As proof of his contention the Food Commissioner will submit analysis of the material substituted.

Pink Eye Epidemic in the City.—This disease is epidemic in Roxborough, Wissahickon, Manayunk, Frankford, and is gradually spreading toward the center of the city. Is is especially prevalent among school children; consequently many children are sent home from school, especially from the Manatawna and Shawmont Public School. In many homes the entire family is affected and numerous cases have been treated at the Medico-Chirurgical, Hahnemann and St. Mary's Hospitals, during the last two weeks. Physicians are attributing the cause of the disease to uncleanliness and carelessness.

Coroner Complimented by Physicians.—Coroner Dugan received a letter signed by many prominent physicians complimenting him upon the efficiency which he has displayed in conducting his office; they also expressed regret that he was not renominated. The following were signers of the letter: Drs. John B. Deaver, Joseph S. Neff, S. Solis Cohen, William P. Hearn, J. C. Da Costa, Jr., Ernest La Place, James M. Anders, L. Webster Fox, J. C. Wilson, J. Chalmers Da Costa, William B. Van Lennep, Orville Horwitz, Henry W. Stelwagon, Joseph C. Guernsey, John V. Shoemaker, Charles S. Hirsch.

Research Fellowship.—Professor W. W. Keen has presented to the trustees of the Jefferson Medical College $5,000, to found a memorial to his wife, and to be known as the "Corinna Borden Keen Research Fellowship." The conditions of the fellowship are such, that when the principal has accumulated $500 this sum shall be awarded by the trustees on the recommendation of the faculty to an alumnus of the Jefferson Medical College who has graduated not more than ten years and not less than one. The man to whom the fellowship is awarded shall spend one year in Europe or in America, or wherever the best facilities exist, working upon some problem which he may select after conferring with the faculty. He must publish a paper embodying the results of his investigations. The first award will be made early in 1907.

CHICAGO.

Appointment of Miss Ahrens.—Miss Minnie H. Ahrens, a graduate of Columbia University, and of

the Illinois Training School for Nurses, has been appointed Superintendent of Provident Hospital.

To Open a Sanitarium.—Dr. George F. Butler, of this city, has gone to Oklahoma on a hunting trip, and upon his return, the first of July, will open a sanitarium for the treatment of chronic nervous diseases.

Dr. Senn Remains Chief of Surgical Department of Rush Medical College.—It has been announced that Dr. Nicholas Senn will remain as the head of the surgical department of this institution, limiting his duties to clinical work in the fall semester. Dr. Arthur Dean Bevan retains his position in the department.

Dr. Murphy to Stay at Mercy Hospital.—Although Dr. John B. Murphy has resigned the Chair of Surgery in the Northwestern University Medical School and has accepted the same position at Rush Medical College, the change from one school to the other does not affect the relations he holds with Mercy Hospital, and he will continue to be attending surgeon.

Rush Medical College Will Add a Fifth Year.—It has been announced by this college that beginning with the session of 1905-1906 a fifth year will be added to the curriculum, which for the present will be optional. The work of this year will be that of (*a*) a fellowship in one of the departments of the college, or (*b*) an interneship in the hospital under the following conditions: (1) Each student taking such work will be under the supervision of the faculty by whom the hospital in which the interneship is taken must be approved. (2) The student must present evidence of thorough clinical work and, if possible, an exhaustive study of a selected group of clinical cases involving original work. (3) He will be required to pass a special examination at the end of the year. On the successful completion of this fifth year he will receive the degree of Doctor of Medicine *cum laude*.

Circular on Care of Babies by Illinois State Board of Health.—The State Board of Health of Illinois has published a circular for mothers, giving instructions as to the best methods of infant feeding and care during the summer months, during which time the death-rate among children under fifteen months is unusually large. Statistics have demonstrated that one-fourth to one-third of all babies born fail to live to the beginning of the second year of life. It is not the heat alone which is responsible for this high mortality. By far the greatest number die from improper food, improper feeding, inability to digest and assimilate the food given. Aside from this work of education the Board of Health will institute other means of protecting the infants of the State from impure milk, and will adopt other plans for reducing the mortality among children. The laboratory at Springfield, which is now prepared for greatly increased work, will probably take an active part in this work.

GENERAL.

Jacksonian Prize.—The Jacksonian prize of the Royal College of Surgeons of England has been presented to Mr. Herbert J. Paterson.

University Loss in Brazil.—The Medical College at Bahia, Brazil, with its equipment and valuable library, has almost totally been destroyed by fire.

Appointment of Dr McLaughlin.—Dr. Allan McLaughlin has been appointed head surgeon of the Marine Hospital at Naples, in the service of the United States.

A New Sanatorium in Colorado.—Dr. S. E. Solly, with the aid of a number of prominent physicians and laymen of the country, has opened the new Cragmor Sanatorium at Colorado Springs, for the treatment of incipient cases of tuberculosis. Dr. Solly hopes in time to be able to make the enterprise one of the type so well exemplified in the Adirondack Sanatorium at Saranac Lake.

The International Anatomical Congress at Geneva.—The first International Congress of Anatomists will be held, writes *Science*, at Geneva, Switzerland, on the 7th and 10th of August. The following national societies are to participate in this congress: The Anatomical Society of Great Britain, the Anatomische Gesellschaft, the Association des Anatomistes, the Association of American Anatomists and the Unione Zoologica Italiana. The organization of the congress has been entrusted to a committee representing these societies, and consisting of Professors Minot, Nicholas, Romiti, Symington and Waldeyer. The presidents thus far named are Professor Sabatier, of Montpellier; Professor Romiti, of Pisa, and Professor Minot, of Harvard. The vice-presidents are Professor Bugnion, of Lausanne; Professor Valenti, of Bologna, and Professor Carl Huber, of Ann Arbor. A general circular is in preparation, which will shortly be distributed to all members of the various societies taking part in the congress, and to such other persons as may request to have it sent to them. The congress owes its successful initiation largely to the zealous devotion of Professor Nicholas, of the University of Nancy, and inquiries as to further details on the part of those interested may be addressed to him.

Association of Medical Librarians.—The eighth annual meeting was held Saturday, June 10, 1905, at the Boston Medical Library. The new building of the Boston Medical Library Association, 8 The Fenway, Boston, Mass., was inspected. James R. Chadwick, of Boston, Mass., spoke on some points in the interior arrangement and construction of a building for a special library; the special library being, in a majority of cases, the property of a society, the requirements of the society must be taken into consideration. (*a*) Is it desirable to have the reading rooms on the first floor? (*b*) Is one large reading room with gallery containing private rooms for dictation preferable to two or three smaller rooms? (*c*) Is it better to have all the book stacks in one place (built to permit of horizontal as well as vertical expansion, according to space), or divide them as illustrated in the new public library building now being constructed in New York City? (*d*) Is it preferable to have the stacks built with a uniform width of shelving, say ten inches, so as to permit keeping all books of a class together (folios proper not considered, as they are kept apart in any case): or, secondly, to follow the old plan of having the lower shelves twelve inches, and the upper shelves eight inches wide; or, thirdly, to have one or more sections, with shelving twelve inches wide, at the end of each row of stacks composed of eight-inch shelving?

Surgery, Gynecology and Obstetrics.—A new periodical with this name is announced. The journal will contain a wide survey of the Surgery, Gynecology and Obstetrics of the world. (1) Original articles upon practical, experimental, and statistical subjects will be judiciously selected from all available sources and will constitute a major portion of the magazine. (2) Comprehensive Original Abstracts from local and foreign journals will form another important department. (3) New books will be noticed, and those deserving consideration will be thoroughly and carefully reviewed. It will be the aim of the journal to make this department valuable to book buyers and book publishers, inasmuch as space enough will be furnished to reviewers in which to make a comprehensive critical survey of the book under consideration. (4) Live subjects will be considered editorially. The editorials will be written

by masters who will be selected because of their fitness to speak on the subject under consideration, and such editorials will be, as a rule, signed. (5) Society Reports will be a conspicuous feature of the journal. The larger societies at home and abroad will be thoroughly reported each month with adequate stenographic reports of discussions and abstracts of papers when the papers themselves are not published in full. The editorial policy contemplates the editing of the magazine by practical men of authority in their respective specialties. This will be accomplished by a systematic division of labor, making it possible for each man to do a small but definite and important part of the whole. This eliminates the figure-heads and will stamp with authority the contents of the journal. The journal is to be financially supported by a stock company of Chicago physicians, organized for its publication. In construction the journal will represent the very highest class of magazine making. It will be printed upon high-grade enameled paper, that it may show illustrations to the best possible advantage. Inserts of lithographic reproductions will be furnished when illustrations of value require them. Care will be observed to cultivate the use of high-grade illustrations for all important articles. We wish the venture a long and useful career.

The Grievances of the Medical Profession in Great Britain.—This is the title of an interesting article in the April 1, 1905, number of the *Lancet*. The following subjects are discussed in detail: "The Evils of Quackery," "Quack Advertisements," "Prescribing Druggists," "The Pharmaceutical Society and Dispensing by Medical Assistants," "The Prescribing Optician," "Registered Midwives," "Parish Nurses," "The Prescribing Parson." With the latter two conditions the medical profession of America have little or nothing to do, but as it shows human nature we quote the paragraph pertaining to this subject in full. "If these women (the district and parish nurses) are unscrupulous in their interpretation of their duties they can supplant the medical man. Undoubtedly, the services of such nurses are of great benefit to the community, but undoubtedly also by preventing medical assistance from being called they have proved now and again a source of danger. As a rule, the district and parish nurses do not take medical duties to any great extent upon themselves, but they are apt to breed mischief by preferring to work with certain medical men to the exclusion of other medical men, and for a medical man to be dependent upon the patronage of a nurse is as galling as it is for him to be ousted from practice at the caprice of a nurse. Occasionally a parish nurse is backed up in her wayward behavior by the parish clergyman and then the medical man, if he is not in favor with the clergyman, is indeed likely to have scant justice dealt to him. Clergymen, especially English country clergymen, are known to have violent medical opinions and prejudices. Many of them, like Sydney Smith, prescribe for their parishioners, but they do it without the great humorist's medical education and natural shrewdness. Woe be to the country practitioner who ventures to reprove the prescribing parson." It is the fad of to-day to remedy all evils, whether of capital or labor, or of patient or doctor by legislation. Medical men are no match for the politicians, whether it be a State legislator working with problems arising from without the medical profession, or a member of a board of managers of a hospital having to do with reform arising from within the medical profession itself. —*Medical Notes and Queries.*

West Virginia State Medical Association.—This association held its thirty-eighth annual meeting in the Board of Trade Hall, Wheeling, W. Va., May 24 to 26, 1905. The following papers were read: "The Teachings of Failures," by Dr. F. L. Hupp, of Wheeling; "The Palliative Treatment of Prostatic Hypertrophy," by Dr. H. E. Sloan, of Clarksburg; "Preoperative and Postoperative Treatment of Surgical Cases," by Dr. J. E. Cannaday, of Paint Creek; "Appendiceal Abscess—Pathology and Treatment Report of Cases," by Dr. S. M. Mason, of Clarksburg; "Injuries of the Head—Report of Cases," by Dr. Henri P. Linsz, of Wheeling; "Anatomical and Physiological Principles Involved in the Symptomatology of Brain Traumatism," by Dr. J. Schwinn, of Wheeling; "Office Treatment of Rectal Diseases," by Dr. William M. Beach, of Pittsburg. Symposium on Pneumonia: "Etiology," by Dr. S. S. Wade, of Morgantown; "Pathology," by Dr. L. O. Rose, of Parkersburg; "Symptoms and Signs," by Dr. W. W. Tompkins, of Charleston; "Treatment," by Dr. L. D. Wilson, of Wheeling; "Tuberculosis," by Dr. J. W. Preston, of Keystone; "Pseudomembranous Croup," by Dr. S. W. Bush, of Parkersburg; "Cases and Experiences of Interest," by Dr. W. H. Sharp, of Parkersburg; "Diseases of the Kidneys," by Dr. M. McNeilan, of Parkersburg; "Rupture of the Bladder," by Dr. J. R. Cook, of Fairmont; "The Importance of Early Diagnosis of Interocular Lesion," by Dr. H. R. Johnson, of Fairmont; "Fikker's Diagnosticum," by Dr. L. O. Rose, of Parkersburg; "Drugs and the Diazo Reaction—A Communication," by Dr. William W. Golden, of Elkins, and "Notes on Tuberculosis," by Dr. Andrew Wilson, of Wheeling, W. Va. Webster Springs, W. Va., was chosen for the next place of meeting and the following officers were elected: President, S. S. Wade, Morgantown, W. Va.; First Vice-President, G. W. Bruce, Moundsville, W. Va.; Second Vice-President, F. L. Hupp, Wheeling, W. Va.; Third Vice-President, A. S. Grimm, St. Mary's, W. Va.; Secretary, Wm. W. Golden, Elkins, W. Va.; Treasurer, V. T. Churchman, Charleston, W. Va. Councillors: First District, A. O. Flowers, Clarksburg, W. Va.; Second District, A. R. Warden, Grafton, W. Va.; Third District, W. W. Hume, Suismimont, W. Va.; Fourth District, W. N. Burwell, Parkersburg, W. Va.; Fifth District, T. W. Moore, Huntington, W. Va. Delegates to American Medical Association: Dr. J. L. Dickey and L. P. Wilson, of Wheeling.

American Climatological Association.—The twenty-second annual meeting of the association will be held at Detroit, Michigan, June 29 and 30, 1905. The following papers are to be read: "President's Address," by Dr. W. F. R. Phillips, of Washington, D. C.; "Health Resorts in Southern California; Personal Experience," by Gen. C. H. Aldens, U.S.A., Ret'd, of Newtonville, Mass.; "Climatology of the Laurentians," by Dr. A. D. Blackader, of Montreal, Canada; "The Climate of Southern Florida for Chronic, Cardiac and Vascular Disease," by Dr. E. L. Shurly, of Detroit; "Climate of the East Coast of Florida," by Dr. Frank Fremont-Smith, of Washington, D. C.; "Relations of the Practitioner to the Physician at Health Resorts," by Dr. C. W. Richardson, of Washington, D. C.; "Hemoptysis in Cardiac Disease," by Dr. Roland G. Curtin, of Philadelphia; "Blood Pressure at High Altitudes," by Dr. C. F. Gardiner and Dr. H. W. Hoagland, of Colorado Springs; "The Influence of Climate Upon Gout," by Dr. C. C. Ransom, of New York; "Permanency of

Results in the Treatment of Pulmonary Tuberculosis; the After-History of Twenty-seven Cases Treated by the Combined Hygienic-Dietetic, Open-Air, and Tuberculin Treatment," by Dr. F. M. Pottenger, of Los Angeles; "Impalpable Sputum," by Dr. Norman Bridge, of Los Angeles; "The Main Factor in the Spread of Tuberculosis—Sputum from the Ambulant Cases. What are we going to do about it?" by Dr. DeLancey Rochester, of Buffalo; "The Plan of the Cleveland Antituberculosis League," by Dr. J. H. Lowman, of Cleveland; "The Sea-Air Treatment of Tuberculosis of the Bones and Glands in Children. Illustrated by Lantern Slides," by Dr. John Winters Brannan, of New York; "Respiratory Movements of the Bronchial Tubes," by Dr. E. Fletcher Ingals, of Chicago; "Some New Points of Least Resistance in the Consumptive," by Dr. Thomas J. Mays, of Philadelphia; "Pneumonia in the Negro," by Dr. Thomas D. Coleman, of Augusta, Ga.; "An Unusual Case of Anthracosis Mistaken During Life for Aortic Aneurism," by Dr. Henry Sewall, of Denver; "The Preventive and Remedial Treatment of Acute Rheumatic Endocarditis. Discussion to be opened by Dr. R. G. Curtin, Philadelphia," by Dr. Beverley Robinson, of New York; "Paper," by Dr. Thomas Darlington, of New York: "Paper," by Dr. Samuel A. Fisk, of Brimfield, Mass.; "An Inspection of the Eastern State Penitentiary, Pennsylvania, with Reference to Tuberculosis," by Dr. Guy Hinsdale, of Hot Springs, Va.; "Immobilization of One-Half the Thorax with the Author's Completed Scheme for Preparing and Applying Traction Plasters to Arrest Pulmonary Hemorrhages, to Relieve Pleurisies and to Contract Lung Excavations," by Dr. Charles Denison, of Denver.

Meeting of the Trustees of the United States Pharmacopœia.—The fifth annual meeting of the Board of Trustees of the United States Pharmacopœial Convention was held at the Philadelphia College of Pharmacy, May 13. The members present were: Dr. J. H. Beal, Scio, O.; Mr. Albert E. Ebert, Chicago; Professor Joseph P. Remington, Philadelphia; Mr. S. A. D. Sheppard, Boston; Dr. H. M. Whelpley, St. Louis; Dr. H. C. Wood, Philadelphia. In the absence of Chairman Charles E. Dohme, who is in Europe, Vice-Chairman Beal called the meeting to order. The minutes of the fourth annual meeting and the intervening correspondence of the board were read and approved. It was decided that a sample page or pages of new books in which it is desired to use some of the text of the Pharmacopœia shall be submitted to the chairman or acting chairman for approval before permission to use Pharmacopœial text be given. Professor Remington, Chairman of the Committee on Revision, made a detailed report of the progress of the work and stated that the new Pharmacopœia would be out before the end of June. The action of the chairman in fixing August 1, 1905, as the date from which the new revision will be official, was approved. One hundred unbound copies will be distributed simultaneously to pharmaceutical and medical journals for review purposes. All books paying for the use of Pharmacopœial text will be required to print upon the obverse of the title page the following words in full face or black letter type: "Authority to use for comment the Pharmacopœia of the United States of America, Eighth Decennial Revision, in this volume, has been granted by the Board of Trustees of the United States Pharmacopœial Convention, which Board of Trustees is in no way responsible for the accuracy of any translations of the official weights and measures or for any statements as to strength of official preparations." The subject of a Spanish edition of the Pharmacopœia was reported upon by President Wood. He was instructed to continue his investigations and again report to the board. Dr. Wood finds considerable demand for a Spanish edition of the United States Pharmacopœia in Cuba, Mexico, Costa Rica and Porto Rico. The Rice Memorial Fund Committee made a final report. Mr. S. A. D. Sheppard was appointed a special committee of one to take charge of this fund and deposit the same in the name of the Board of Trustees of the United States Pharmacopœia Convention. It was decided that as soon as sufficient moneys shall have been received after paying present indebtedness and current bills that the sum of $200 be paid to each member of the Committee on Revision, excepting the chairman (Prof. J. P. Remington), to whom shall be paid $2,000; to the secretary of trustees (Dr. Murray G. Motter), $500; and the treasurer of the convention (Dr. George W. Cook), $200. The secretary of the board reported progress on the Abstract of Proceedings of the Board of Trustees and further action was postponed. The following officers and standing committees were elected for the ensuing year: Chairman, Charles E. Dohme, Baltimore, Md.; Secretary, Dr. Murray G. Motter, Washington, D. C.; Executive Committee, Dr. J. H. Beal, Scio, O. (chairman); Dr. H. C. Wood and Charles E. Dohme. Auditing Committee, Dr. H. M. Whelpley, St. Louis, Mo. (chairman); Dr. A. E. Ebert, Chicago, and S. A. D. Sheppard, Boston, Mass. H. M. Whelpley, Secretary.

The Microbe Killer Redivivus.—In an article on "The History of Antisepsis and Antiseptics," which appeared in *The Medical Review*, of St. Louis, September 30, 1893, it was stated that one Sir John Colbatch, of England, in the year 1698, prepared an aqueous solution of sulphurous acid which he recommended to the public and the medical profession in the following words: "It is an excellent medicine, being taken by way of prevention in infectious seasons, and I think if any medicine deserves that name this doth deserve to be called the true prophylacticon." The *Druggist's Circular*, of New York, in an able editorial exposé of a recent proprietary article, says: "For many generations sulphurous acid, in aqueous solution, has been prescribed to some extent by the medical profession, but its keeping qualities are so poor and, if too strong, its dangers so great that it has practically dropped out of use even in those cases in which it is known to be efficacious. There can be no reason for questioning its power as an antiseptic. Ages before we knew anything about bacteria and other microparasites as causes of disease, the power of antiseptics as preventives was fairly well known. How antiseptics acted in order to bring about the effects that had been observed in connection with them was then wholly unknown, although a few shrewd guessers had come pretty close to the true explanation. Potent as sulphurous acid ought to have been in accordance with theory, when it was tested in practice it proved a dismal failure. About seventeen or eighteen years ago one William Radam undertook to resurrect the dead "prophylacticon" of Sir John Colbatch. In spite of his faith in his preparation as a cure-all Mr. Radam died a few years ago, and now that its patent has expired liquozone has come in to take the place of the 'microbe killer.' We suspect that some of the men who held territorial rights from and paid royalties

to Mr. Radam in bygone days have taken part in its resurrection under the name of liquozone. The appearance of this new supposed wonder-worker is characteristic of the old one and the time of its advent is suggestive of its origin. Like the microbe-killer, its composition is evidently inconstant, if we can judge from the numerous analyses that have recently been made of it. They all agree in declaring that it contains sulphuric acid and sulphates, sulphurous acid and sulphites, water and a trace of coloring matter. A number of specimens have shown the presence of hydrochloric acid and chlorides. Some have declared that hydrobromic acid was present, but it has been suggested that since the usual tests for bromides differ from that for chlorides only in a slight yellowness of the precipitate, that the color of the liquor in which the precipitation occurred may account for the supposition that bromides instead of chlorides were present. Under Radam's original patent, sulphur, potassium chloride, sodium nitrate, and manganese dioxide were heated to a high temperature together in a metal cylinder or retort and the resulting gases were taken up by water until it was saturated. The first products marketed evidently did not give satisfaction, for Radam had a change made in the specifications by substituting potassium chlorate for potassium chloride. The product of the first formula had sulphuric acid and hydrochloric acid as the chief ingredients. The water was colored with a little wine. As soon as potassium chlorate was used, the chief product, and the one aimed at by the manufacturers, was sulphurous acid. The weighing, mixing, heating and absorbing of the gas in the solution were attended to by men who knew little or nothing about chemistry, so, naturally, the product was never twice alike. Usually it contained some nitrous acid and some nitric acid, but these seem to be absent from liquozone. The Liquozone Co. has published the following statement regarding its process: 'The virtues of liquozone are derived solely from gas, by a process requiring immense apparatus and from eight to fourteen days' time. The gas is made, in large part, from the best oxygen producers. Nothing whatever enters into the product save the gas and the liquid used to absorb it, plus a touch of color.' This description is practically the same as that which was printed in the Radam literature, and is, as far as it goes, a simple statement of the truth regarding the way in which Radam's preparation is made. The best oxygen producers are potassium chlorate and manganese dioxide. The liquid used to absorb the gas is water, and the touch of color may be the same sort of red wine that Radam used. The clumsy, crude apparatus patented by Radam, if put up in a size commensurate with a large output of the stuff, could properly be spoken of as immense. The slow and stupid method of causing absorption pursued under the old patent may actually make necessary from eight to fourteen days' time to saturate the solution when there is a large amount of the liquid to be treated. If the makers of liquozone were as truthful in all their statements as they seem to be in the description they give of the way their preparation is made, it would be a delightful and refreshing evidence of the improved morals of the class of nostrum venders in which they have taken their place. Unfortunately this is not the case. The very name they have chosen was evidently designed to mislead and deceive. Nothing could be farther, chemically, from ozone than is this preparation. The claims they make regarding its therapeutic worth would be laughable, because of the crass ignorance and stupidity which they betray to the educated mind, if it were not that they are so tragic in their results upon a community ignorant alike of human physiology and the effects of drugs. One would think that intelligent people who are wholly ignorant of medical matters would know that the statement that 'one home in five—wherever you go—has some one whom liquozone has cured,' was not true. Perhaps they do—and leave liquozone alone. How easy it would be for any person to prove the untruth of the assertion that 'for years it was tested through physicians and hospitals, in this country and others' by demanding of the liquozone people the names of these hospitals and physicians. The statement that it is harmless can easily be proven false by taking a goodly supply on a fasting stomach or administering it undiluted to some animal."

OBITUARY.

Dr. IRA P. SMITH died last week at Bath, N. Y. He was sixty-nine years old, and served as a regimental surgeon in the Civil War.

Dr. JOHN WILLIAMS STREETER, many years a leading Chicago physician, died at his country home in Lake Forest, from blood poisoning, resulting from a surgical operation.

Dr. LAWRENCE C. SWIFT died last week at Pittsfield, Mass. He was a native of Geneva. His grandfather was the first graduate of West Point and later was its Superintendent.

Dr. EDWARD PAYSON DROWN, a prominent Malden (Mass.) physician, died from blood poisoning, following an operation for appendicitis. Dr. Drown was born at Keene, N. H., thirty-nine years ago, and was educated in the public schools there. He entered Amherst and won his A. B. in 1889. At Harvard he took his M. D. in 1893, and immediately thereafter settled in Malden. He was city physician of Malden in 1895, '96, '97 and '98; past president of the Malden Medical Society; district censor of the Massachusetts Medical Society; on the medical staff of the Malden Hospital; director of the Malden Boy's Club; a member of the Malden Chapter of the Sons of the American Revolution and prominent in the First Congregational Church.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, May 20.

THE CRUSADE AGAINST TUBERCULOSIS—PROPOSED AMALGAMATION OF LONDON MEDICAL SCHOOLS—THE STATE REGISTRATION OF NURSES—PLAGUE IN INDIA.

ON May 17 a great meeting was held under the presidency of the Lord Mayor for the purpose of making the merits and needs of the National Association for the Prevention of Consumption and other Forms of Tuberculosis known to the public. Sir William Broadbent, the Chairman of Council, bearing the blushing honors conferred in Paris fresh upon him, went over the familiar ground of the prevalence of consumption, the heavy tribute of human lives caused by it, the financial loss thereby entailed upon the nation, and the causes, predisposing, exciting and contributary, which led to its production. He pointed out that one of the objects of the Association had been to teach the public the mischief which arose from expectoration, and they had endeavored to make indiscriminate spitting a punishable offense. To a certain extent they have been successful, but had the eminent physician told the whole truth he would have added that the education of the British public in this matter can scarcely be said to have begun. In railway carriages, omnibuses and tramcars and in streets and other public places the free-born Briton of the commoner kind expectorates

just as the spirit moves him. Sir William Broadbent stated that although the mortality from consumption had in the last half century been reduced by one-half, it was a sad fact that tuberculosis generally had not diminished among children. The Association, which has branches all over the country, is striving to stir up public authorities to take an active part in the work of prevention. Much has been done in the way of voluntary notification of the disease, and in some places compulsory notification has been adopted. Broadbent expressed a hope that before long it would be adopted in London. Dealing with the sanatorium question, he admitted that while these institutions are doing an immense amount of good, a certain amount of disappointment has arisen owing to their being used for unsuitable cases. The work of the Association has grown considerably, and it must continue to grow. A central bureau is wanted to which people can apply for information as to consumption and learn what is being done. The Earl of Derby, who followed, referred to the great interest felt by the King in the problems of tuberculosis, and directed attention to the three ways in which the war against consumption was to be waged —by prevention of the disease, by remedial measures, and by the prevention of relapses. He suggested that the Association should do all in its power to find means of segregating advanced and incurable cases. Sir James Crichton Browne also mentioned the King, whom in his rhetorical style he declared to be a promoter of amity between nations but of implacable war against disease. The name of the King is the favorite refuge of the public orator in this country, for it is always greeted with loud applause, and the snobs who make up by far the largest part of any audience think it "good form" to affect an interest in anything that has the patronage of royalty. Leaving the monarch, Browne, who has a *copia fandi* almost equal to Gladstone's, surveyed mankind from Canada to New Zealand and urged London to imitate the example set by Ottawa, Adelaide, and Cape Town, in all which places he would have people to believe that branches of the Association flourished. A hearer, who like Iago was nothing if not critical, might have interjected that if London had done no more than the colonial capitals just mentioned, there would have been little indeed for Sir James Crichton Browne to exercise his eloquence upon. He went on to say that sanguine persons thought that tuberculosis might be eradicated in thirty years, while more cautious prophets said this consummation might be achieved in a century. Browne holds that the work of sanitation is by no means complete, and he has no doubt that the feeding of school children, if properly carried out, would lead to a large reduction in the prevalence of tuberculosis. The most remarkable passage of his speech was one in which he referred to the prospect of a cure being found. He said it was hoped that medical science would provide some remedy for consumption. Some did not think so, but Browne avowed himself an optimist and confessed that he was eagerly looking out and thought he could perceive some hopeful indications in that direction. On the exact nature of these indications the oracle was prudently dumb. The Association wants a sum of fifty thousand dollars for its immediate necessities and the meeting pledged itself to support the appeal made to the public for subscriptions.

Reference has several times been made in these letter to the detriment to medical education here caused by the scattering of teaching power among eleven independent medical schools. Each of these is attached to a hospital, and most of them require to be subvented to a greater or less extent from the funds of the hospital. This has given a handle to the enemy which the antivivisectionists have not been slow to use. Stephen Coleridge, their chief, after clamoring for years about the diversion of money subscribed for the benefit of the sick-poor to the support of vivisection at last, got a Royal Commission appointed to inquire into the matter. That Commission reported that most of the schools received money from the hospitals and that while the schools made some return in the form of services rendered by students, by bacteriologists, etc., this did not altogether constitute an equivalent. The Commissioners therefore recommended that the hospitals and the schools should be financially independent of each other, and that the teaching of the subjects which form the scientific basis of medicine should be carried out in two or three large centers or institutes of a university character established for that special purpose. In other words it was recommended that the medical schools should be abolished and that the hospitals should confine themselves to clinical teaching. This is exactly what had been urged by medical reformers for years, but vested interests kept the schools from dancing to their piping. Then came the foundation of several universities in the provinces—Manchester, Liverpool, Birmingham and Sheffield—each offering a good medical training and degrees on fairly easy terms. As a consequence London has for some years past seen students in increasing numbers set their faces in other directions, and her medical schools drifting slowly but surely to bankruptcy. At last the schools are beginning to realize that their day is past, and amalgamation is in the air. Westminster Hospital has arranged to send its students to learn their physics, chemistry, anatomy, physiology, and materia medica, at King's College, while they will return to it for their practical training. St. George's and St. Thomas's are negotiating with King's for the same purpose. St. Bartholomew's, the largest school of all, has arranged to hand over its students in the same way to University College, and it is not unlikely that Middlesex may follow suit. Charing Cross, which has a number of dental students, prefers to stand by itself; the London Hospital and St. Mary's are understood to have decided to do likewise, and Guy's is considering the situation. But it is scarcely possible that this attitude can be maintained; sooner or later the recalcitrants will perforce have to come into the combine. There will be three scientific institutes in which students can go through the first three years of the curriculum, to wit, University and King's Colleges, already mentioned, and the Institute of Medical Sciences of the University of London. But the last of these is still in the region of the unconditioned, and it may be years before it becomes materialized. Moreover, the situation chosen for it, which is in an expensive quarter far away from all centers of medical activity, will greatly limit the number of students. Notwithstanding many difficulties that have yet to be overcome, there can be no doubt that the movement toward concentration of scientific teaching marks the dawn of a brighter day for London as a center of medical education.

A question which is now agitating the small part of the medical profession that cares for anything beyond the trivial round of daily work is the State registration of nurses. The cooking of the pie is complicated by the number of persons and parties who wish to have a finger in it. There are two bills competing for the favor of Parliament, a body which wishes to get itself registered by the Board of Trade as a limited liability company, and other schemes which have not yet con-

densed themselves from the gaseous condition of speculative chaos. The House of Commons, finding the subject too thorny to deal with, appointed a Select Committee to take evidence and report. On May 18 Sir Victor Horsley appeared as representative of the British Medical Association, which, he said, comprised some twenty thousand members, and was, in their opinion, the only voice of the medical profession. He recalled the fact that at the annual meeting held at Oxford, in August last, a resolution had been passed approving the principle of registration. He gave it as his opinion that the registration of nurses would not bring them into competition with doctors. There should, he thought, be an examination for nurses by a statutory authority, and the passing of that examination should be the only way in which a nurse could get her name on the register. He would make it a penal offense to nurse for gain, unless the person so doing had been trained for three years in a hospital and had passed an examination. The Chairman of the Committee, having said that it had been suggested to them that the ordinary general practitioner did not hold the same view as to the registration of nurses as consultants, a provincial practitioner was put forward to contradict this. Another witness, representing the Incorporated General Practitioners' Society, thereupon testified that that body was entirely opposed to the registration of nurses, as the poorer classes of patients would be unable to pay for a skilled nurse. This, it may be said in passing, is the root of the whole matter. The trained nurse in this country is already a "superior" person whose services cost from $10 to $20 a week, exclusive of maintenance, and who expects so much waiting upon that she is a burden to a middleclass household and an intolerable oppression to families of limited means. Horsley's proposal to penalize the practice of nursing by any but the august beings who have passed an examination requiring a scrappy knowledge of all the medical 'ologies would deprive the vast majority of British homes of whatever comfort the presence of a nurse may bring in time of illness. Nor is the fear of the general practitioner that he will be supplanted by the highly-trained nurse by any means chimerical. Already the big operating surgeons hand over the after-treatment of their cases largely to nurses of their own choosing, and the general practitioner who provided the patient and whose recognized prerogative it used to be to look after when he had got safely through the ordeal of the knife, is simply pushed aside. There is a very considerable feeling against the measure among general practitioners, and the true significance of the resolution of the British Medical Association can be estimated only when it is known that it was practically rushed through by a jaded and distracted meeting at the bidding of Horsley himself, who was in the chair and who is a first-class "hustler." Further, the accuracy of the statement that the voice of the British Medical Association is the voice of the medical profession may be gauged by the fact that it includes considerably less than half their number. Some amusing evidence was given by Sir James Crichton Browne, who represents the British Nurses' Association. He said that nursing and nurses had enormously improved and were steadily improving, but there were still a good many incompetent nurses, and he thought registration would winnow out the ignorant, stupid and incompetent. As illustrating the state of things that used to exist, he mentioned that when he first took charge of an asylum some of the nurses could not read the directions on the medicine bottles, and had to apply to the lunatics for help. Some time ago a woman, representing herself as a mental nurse, applied to him for a berth. Asked what her training had been, she replied that her late husband had been a policeman! Although the census returns showed that there were 80,000 nurses in the United Kingdom, he thought that number included many young women who merely looked after children. He calculated that if the system of registration was adopted not more than 3,000 nurses would be registered yearly. That allowed for the great wastage of nurses, which was an undoubted fact. He did not think the life of a nurse as such was more than fifteen years. There was first a heavy mortality through marriage, and many gave up the profession owing to other causes. In regard to marriage it may be added that many young women in this country take up nursing with an eye to matrimony. Some capture rich patients, and many who have not that luck content themselves with young medical men or hospital officials.

On May 19 Dr. Charles Creighton read a paper before the Society of Arts on plague in India, a subject which he has studied in the country affected. He pointed out, with the aid of a map, that in 1898 the plague-stricken area was comparatively small, but it is now enormous. Last year the deaths from plague in all India were about a million, of which nearly four hundred thousand were in the villages of the Punjab, and three hundred thousand in the villages of the Bombay Presidency. The enormous and steady prevalence of plague among the rural population is perhaps the most remarkable fact in the science of epidemiology, because twenty years ago people had begun to look on plague as a thing of the past, and at no previous time was India considered a great seat of the disease. Discussing the causes of plague, he pointed out that where it was most deadly the houses were close together, and where it did comparatively little harm the dwellings were scattered. Some houses which had proved favorable to the disease had neither window nor back-door. Others were really cells in a common building. Others, again, were largely below the level of the general surface, muddy clay dug out of the ground having been erected as walls round the pit thus made. After seeing many of "those dreadful mud villages," he had come to the conclusion that they were the real reason why the Indian plains were cursed with plague. Dr. Creighton, it may be mentioned, though a very able man, is to some extent a medical Ishmael. He is one of the most violent opponents of vaccination, hating the memory of Edward Jenner with the rancor of a personal enemy. He is one of the three medical men of any note in this country whom the "antivacks" regard as in a scientific sense their patron saints, the other two being Sir William Collins, a burning light of the London County Council, and Dr. Edgar Crookshank, late professor of pathology at King's College. He is also unorthodox in his views on more than one of the great doctrines of modern pathology. Dr. Creighton is the author of a very learned history of epidemics published by the University of Cambridge, where he was for some time Demonstrator of Pathology.

OUR PHILIPPINE ISLANDS LETTER.

(From Our Special Correspondent.)

HONOLULU, April 15.

SOME one in Manila asked me if I knew what "Hawaiian Fever" was, and having confessed my ignorance, he suggested looking it up if we went there on our return. Well, I did so, and the following summarizes the expert opinion of the Islands on this fever. The story goes that the term

"Hawaiian Fever" was first used in a death certificate issued by a Japanese physician practising in Honolulu and led to a thorough discussion of the question whether there was any such distinctive fever and what were its symptoms. Finally, at the meeting of the Hawaiian Medical Association in Honolulu, on Saturday, February 4, the matter was thrashed out in a paper by Dr. A. N. Sinclair, "Fevers in Hawaii and their Relation to Malaria," and in the discussion that followed.

First, and I write after talking with a number of prominent physicians, it is pretty freely agreed that the general run of fevers in Hawaii do not differ materially from those in tropical countries—*except in one notable instance*—and this, according to Dr. Sinclair, is "perhaps the most common one in Hawaii," and which, for want of a better name for the time being, the doctor designates as "Hawaiian Fever." This differs from enteric fever in the rapidity of onset and a rigor. There are no prodromal symptoms, as general malaise, nose-bleed, etc. There is not the characteristic "terrace" formation of the line as in an enteric temperature chart and there is no delirium, no rash. There is Widal's test for typhoid and in no case of the fever under discussion, even "in the dilutation of 1 to 10," has Dr. Sinclair gotten this reaction.

The question as to whether Hawaiian fever was not a form of malaria brought out the very interesting fact that in the opinion of a large quorum of members of the society present on the above evening, malarial fever does not exist in the Hawaiian Islands (unless in isolated cases coming sick, off ships) and that no *Anopheles* mosquitoes have ever been found there, nor the *Plasmodium malariæ* in a case of fever originating in the Islands.

The temperature in Hawaiian fever is of the remittent type; and in its mildness it resembles benign tertian (Dr. Sinclair). The temperature, however, rises suddenly, to 103° F. or higher; this rise is preceded usually, by a very short rigor, which generally takes place in the early evening; *an extremely rare occurrence in malaria.* Furthermore, though there is the initial rigor, always of short duration, there is an entire absence of intermittent chills and fever.

There is headache at the outset, not severe as in malaria, and with it nausea and vomiting, but the latter is rarely if ever bilious. There is no tenderness over the liver, no enlargement of the spleen nor icterus. A loaded decending colon is almost always present. In regard to this last-mentioned symptom, Dr. George Herbert called attention to the fact that the fever which would continue after the bowels had been cleared disappeared after the patient had been at sea even a short time. Other symptoms more or less marked, were anorexia, muscular pains in the back and limbs and a dry skin. The temperature in the majority of cases is of the remittent type, rising during the day to 103° F. or thereabouts, and falling two degree or more the next morning; reaching the normal on the third day. *There is never any recurrence of the chill and never any severe sweat,* a very important and interesting point in the differential diagnosis of Hawaiian fever.

The above, it seems, is the course pursued by the majority of cases, but occassionally the fever runs along for two to three weeks and very rarely as long as six.

These latter cases differ apparently only in a great exaggeration of all the symptoms noted in the milder ones and Dr Sinclair notes that whether in the long-continued form of the fever or where a patient suffers relapses, "the infrequency of bilious vomiting, the absence of icterus, and the general course of the disease puts it out of the category of bilious remittent." "The absence too, of low muttering delirium, of melanemia and the small death-rate (almost all cases of Hawaiian fever recover), take it from that of typho-malaria." Finally, it cannot be compared to adynamic-malarial-remittent fever, considering the concomitants of that disease, to-wit, the deterioration of the red blood corpuscles, the melanemia, hemoglobinuria, etc.

An exceedingly interesting point brought out by Dr. Sinclair and confirmed by other students of Hawaiian fever, was the action of quinine in this disease. This fever, it seems, *is not amenable* to this drug, indeed there are grounds for believing that, on the contrary, it is actually *harmful.* Dr. Herbert said that in his experience quinine was absolutely inert and Dr. Cooper said that in a large number of cases of "this local fever, which they had had at the Queens' hospital (Honolulu) last year, quinine had no effect upon it."

In speaking of the symptom mentioned above, the loaded descending colon, the question came up as to whether the disease could possibly be due to constipation. It would hardly seem so, since no regulation of the bowels will prevent a recurrence and the fever may persist long after the bowels have been evacuated. Native Hawaiians, I was told by Dr. J. R. Judd, are, in considerable proportion, very liable to auto-intoxication and to a persistence of ferments in their systems. Several of the physicians to whom I spoke thought that investigations along this line might lead to some elucidation of the cause or causes of the disease under discussion.

As I said in the earlier part of this letter, whatever the cause of this fever, it is not the Laveran plasmodium, but many hold to the opinion of Dr. Herbert that there may be some "miasmatic toxic action" in Hawaiian fever, as there undoubtedly is in other fevers, more or less prevalent in the Islands. And arguing along this idea he said that they did have in the Islands a fever arising from the upturning of the soil. He had seen, for instance, on the island of Maui, what had been a healthy camp, turned into a sick one, with nearly two-thirds of the men down with fever, plainly caused by turning up of the field just near by.

There is a moisture-laden cloud which hangs over Honolulu (especially the lower portions) in the morning; the emanations from the outfall sewers undoubtedly are mingled with this and Dr. Herbert said it was a well-known fact that people living within the influence of this cloud, became from time to time sick and listless, with loss of appetite and high fever. Relief from these symptoms was at once obtained by removal to a higher altitude or by a few days at sea. No plasmodium was to be found in the blood of these patients; the disease resulted from "some paludal miasma."

Dr. Cofer, head of the Marine Hospital Service, referring to what Dr. Herbert had related of the outbreak of fever on Maui, told of a similar experience in El Paso, Texas, where sickness at that time was very prevalent among the men employed on the new sewers. They would be taken with a severe chill, followed by a sweat, *quinine brought no relief* and death resulted in many instances. "Nobody pretended to throw any light on this fever. There was evidently a *paludal* poison at work."

Dr. Van Dine, of the United States Agricultural Experiment Station, having stated that in all his researches in the Islands he "had not seen a single specimen of the *Anopheles* mosquito" (a very important confirmation, by the way, of the statements of the practising physicians), one of the gentlemen present (Dr. Waterhouse) opined, that while there might be malaria without the *Anopheles* mosquito, there would not be *malarial fever* without this insect.

In speaking of fevers which had come under his notice, he said that at the Kamehameha schools there formerly prevailed a fever which had almost entirely disappeared since the boys had been compelled (as far as possible), to drink distilled instead of the tap water.

In closing this I should say that estivo-autumnal fever is absolutely unknown in the Hawaiian Islands.

SOCIETY PROCEEDINGS.

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

First Annual Meeting, held in Washington, D. C., May 18 and 19, 1905.

FIRST DAY—MAY 18TH—(*Continued*).

(Continued from Page 1052.)

SOCIOLOGICAL SECTION—(*Continued*).

Private Benevolence.—This is not, however, exclusively a question for the city. It is also in large degree a question for private benevolence. The establishment of more and better sanatoria, and the maintenance of more and better tuberculosis dispensaries, the assistance at home of the consumptive who cannot be removed to a hospital, the care of the family whose wage-earner is under treatment, and certain portions of the educational campaign, are as appropriate for private initiative as for public action, if not distinctly more so. What is needed for these purposes is not large permanent endowments, nor moderate annual contributions for an indefinite period. The need is for unusually large contributions for a comparatively brief period. The citizen of New York who will set aside a sum of money which, together with the income upon the unexpended portion, will provide half a million dollars a year for the next ten years, will write his name large on the future history of the metropolis, will show himself a profound student of social well-being, a wise judge of the merits of various possibilities in the investment of his money, and in every city, large and small, the men of means, who feel the call of the social spirit, can find no better subject for contemplation and prayerful consideration than this which we are considering. "Let us hope that the founder of the splendid Phipps Institute will be but the first of a long line of public benefactors who will supplement the work of municipalities in this splendid service to humanity.

American Enterprise.—"We are a great people, at least so we are told. Our resourcefulness, energy and capacity for organization, are said to be the wonder of those whom we have passed in the race for industrial supremacy. We do large things in a large way and get large results quickly. We see great opportunities, appreciate the bearing of new discoveries, and move quickly, and in the right direction. Have we not now before us the greatest opportunity of all—an opportunity to invest a very small proportion of our free capital in a manner which will yield large and quick returns in the prevention of sickness, disease, and death? Let us not, as a people, proceed in any halting, uncertain manner in the accomplishment of this task, for whose performance we now have, for the first time in the world's history, the necessary scientific guidance."

The second address at the Section was delivered by Edward T. Devine, General Secretary of the New York Charity Society and Professor of Social Economy at Columbia University, who took for his subject a working program for associations for the prevention of tuberculosis, national, State and local. Dr. Devine's long experience in charity organization work has enabled him to realize just what are the necessities of organization in the crusade against tuberculosis, and so his suggestion of a positive program cannot fail to be of interest to medical men generally.

Suggested Program.—So far as the movement for the prevention of tuberculosis is concerned, there is little difficulty in formulating a positive program. It has at least ten features: (1) The maximum of sunlight and fresh air for all mankind—at work, at leisure, and at sleep, and if there be any other occupation than these three, then while engaged in those other occupations as well. (2) An abundance of simple, and yet sufficiently varied and nourishing food, especially—to put it concretely—of pure milk and fresh eggs. (3) Early diagnosis of every case of pulmonary tuberculosis by the family physician, and the utmost attempt to secure compliance with his advice as to medical treatment and diet, change of work or complete release from regular employment, change of residence, or removal to sanatorium or hospital—such advice naturally taking into account all the circumstances of the individual patient. (4) Registration of all cases, whether in tenements or palaces, whether in city or country—not to be followed by any unnecessary interference by health board inspectors or nurses, if there is a physician in charge, or by any other invasion of privacy or other personal hardship—but enabling the duly constituted health authorities to know their problem and to deal with it on the basis of complete knowledge. I am aware that in many communities this is a counsel of perfection, but it is a part of our program. (5) The establishment of hospitals, or hospital wards, or houses of rest, or whatever other institution will best serve the purpose for advanced cases, with two primary objects in view: to make such patients more comfortable in their last months, and to diminish the centers of active infection. (6) The establishment on a generous scale of State, municipal, and provide sanatoria for the treatment of patients in the earlier stages, cases promising either cure or at least arrest of the disease, and radical improvement of general health—no expense being spared so far as as essentials are concerned, no extravagance being tolerated in non-essentials. (7) Publicity as to the means of preventing infection, and as to the other elementary rules of hygiene, through every known channel of public instruction: newpapers, schools, the lecture platform, leaflets in all necessary languages, appropriate special periodicals, and instructive visits from physicians, nurses, or competent lay visitor. (8) Conference for interchange of views and experiences among those who in any way, however humble, are working at the common task and associations for educational and preventive work. (9) Relief in various forms, but especially in the form of special diet for those who can and must be treated at home, rather than in sana-

toria, and who are without sufficient income to provide for the necessaries of life—which in some cases include the prescribed diet essential to life and recovery. (10) And finally, further research. Even here, where I am a rank outsider, I must round out my statement of our general program. We need more knowledge, better authenticated records, further comparison of results, ever more and more accurate knowledge—and for these we must have laboratories, endowments, and favorable conditions for scientific research, travel for observation and study abroad, and training for fruitful investigation.

Unfortunately, there is not space for the rest of Dr. Devine's suggestive address. Some of the conclusions, however, which show how clearly he has recognized the medical needs and how he appreciates the situation, will not only be of interest but will appeal especially to physicians who are apt to be so close to the work as not to recognize some of its details.

Specific Measures.—Dr. Devine said that the specific measure for which a local association or committee for the prevention of tuberculosis should work, naturally vary with the size and the character of the community in which it is to operate. It is safe to suggest to all the desirability of securing the services of an executive secretary who need not, but sometimes may advantageously, be a physician, an office open at convenient hours for callers, and as much of a constitution or by-laws as will insure regular meetings of a governing body, and the fixing of responsibility for work to be done. If there is no special hospital for consumptives or separate ward in a general hospital, that will frequently be a good objective point of attack. In this connection the pamphlet published by the New York Committee on the Prevention of Tuberculosis, entitled, "County and City Care of Consumptives," showing various methods of safe and economical housing will be suggestive. If there are many who are not receiving suitable medical oversight, and who are likely not to consent to removal to a hospital, it may be expedient to establish a special dispensary with both medical and nursing service, or, if dispensaries already abound, to organize in existing dispensaries classes for pulmonary tuberculosis, for the double purpose of removing these patients from the general waiting rooms when they are occupied by other patients, and securing for the consumptives the advantage of closer specialization and more appropriate treatment.

Inadequacy of Hospitals and Dispensaries.—There is as yet no city of considerable size in the United States in which there is even an approach to adequate hospital and dispensary facilities for consumptives. In these two tasks alone, therefore, there is ample opportunity for useful service for all the associations which are likely to be formed in the near future. Washington, the national capital, until one year ago had no hospital, sanatorium, or dispensary for consumptives, although the Home for Incurables, with its limited resources, did not refuse to receive advanced cases of pulmonary tuberculosis. It is not impossible that there may be some relation between this lack and the fact that the city of Washington, in 1900, had a death rate higher than that of any other city except New Orleans, and a death rate from tuberculosis higher than that of any other city New Orleans and San Francisco. The pavilion at the Asylum Hospital opened last year accommodates thirty-four patients which is about one out of seventy-five of the total number of consumptives in the city. Baltimore with 135 hospital beds for consumptives, Boston with 250, Chicago with 400, St. Louis with 100, and New York with 1,000 have but begun to provide for the need.

Professional Education.—Next to the creation of hospital and dispensary facilities, possibly of even earlier urgency, is the necessity of educating the rank and file of the medical profession as to the necessity for early diagnosis, registration, and protection from infection by all conservative, measures. One eminent physician has gone so far in declaring that on a subject like this it is infinitely easier to secure the cooperation of the tenement house population, than to win that of the doctors. I hold that to be an unduly pessimistic view, thought it was based on sad experience. Without going so far, it may still be permitted courteously to point out that if the specialists and the pioneers are right, the practice of a very large number of family physicians is wrong—wrong, that is to say, in not making sure from the first manifestation of the disease in any member of the family that rigorous prophylactic measures are taken to insure immunity for the others, and wrong in the failure to join heartily in securing the adoption of energetic educational and preventive measures.

Creation of Public Opinion.—And next after these two great undertakings, comes the yet greater, and it may be we should say even more elementary undertaking, to which repeated reference has already been made—the creation of a sound public opinion, midway between indifference and phthisiophobia, an enlightened public opinion in which every one is frightened just enough to act sensibly, and not enough to act foolishly; just enough to insure necessary public appropriations and private donations, but not enough to make it difficult for a cured and educated consumptive to find a job, just enough to cause the railways to disinfect the hangings of a sleeping car and the cushion of a day coach, but not enough to cause them to refuse to an indigent consumptive girl, on her way to a sanatorium, the charitable reduction which is given to other indigent persons; just enough to cause the city to build a sanatorium, but not enough to induce the legislature to permit local prejudice to close county after county to the urgently needed sanatorium, except on a bribe to the county commissioners, and the township trustees. When this happy golden mean of public opinion is to be found in every community, the death-rate from tuberculosis will diminish with a rapidity which will enable us to contemplate the speedy dissolution of our association for the prevention of this disease, and will release for the next big task the energy and the financial resources which for the present are imperatively demanded for this above all others.

Pathological and Bacteriological Section.

Second Day, May 19th.

The Chairman of the Section, Dr. M. P. Ravenel, of Philadelphia, in the Chair.

Channels of Tuberculous Infection.—Dr. William H. Welch, of Baltimore, said that, in a broad way, the subject of channels of infection of tuberculosis may represent all the sources of the disease as well as the avenues of entrance. Of the frequency of tuberculosis there can no longer be any doubt. Naegeli pointed out years ago that in the autopsies on subjects who died past middle age there is a very large proportion in which tuberculosis lesions can be

found. As a matter of fact, if care is exercised in the investigation, over 95 per cent. of all bodies of persons that have died over eighteen years of age may be shown to contain tuberculous lesions. These lesions are usually healed, but it shows that practically everyone has been affected by the tubercle bacilli at some time in life. Burckhardt, in Leipsig, found the confirmation of this work of Naegeli, and Necker, in Vienna, came to the same conclusions, though he suggested certain considerations that would modify the supposed significance of his observations.

Tuberculosis Not Ubiquitous.—These observations would seem to indicate the practical ubiquity of tuberculosis. As pointed out by Cornet, however, this states the frequency of tuberculosis in terms of the dead and not of the living, which is not the proper way. Even when the living are considered, the statistics are startling enough. On the other hand, the material thus investigated is from certain localities in which tuberculosis is rather more frequent than in many other places, and then besides, it is from the patients in large hospitals, who are more likely than others to have had at sometime an opportunity for infection with tubercle bacilli. It is certain that if there were compulsory vaccination for all cases, the number infected with tuberculosis would be found smaller than this. Besides, Necker questions if all the lesions that are found are really healed lesions of tuberculosis. He disputes nearly 25 per cent. of the cases as being of non-tuberculous origin. This would leave at most scarcely more than 70 per cent. of all bodies as having had at some time tubercle bacilli actively at work in them.

Reasons for Cure.—It would seem that in these cases the fact that the patients did not die of tuberculosis demonstrated the presence of a higher resistive vitality to the disease than most human beings. It must not be forgotten, however, that, as Dr. Trudeau has pointed out, there is a distinct variation in the virulence of tubercle bacilli, and there are many forms that are only of slight virulence. The progressive cases, then, are so not alone because of special susceptibility, while other more favorable cases prove resistive, but also because there is a lessened invasive power. It is not fair to state the reason for the course of the disease in terms of the host alone. The bacillus itself must always be taken into account, and hence the possibility of secondary infection by other forms of tubercle bacilli in any given case must be considered.

Positive Predisposition to Tuberculosis.—Dr. Welch firmly believes in a predisposition to tuberculosis. While the tubercle bacilli are not as ubiquitous as the pyogenic micro-organisms; while they are truly obligatory parasites, and do not exist in outer nature, there is no doubt that some persons, because of their susceptibility, are more likely to be affected by them. This predisposition is probably not as frequent as used to be thought, and hence the crusade against the tubercle bacilli is more likely to be successful. The bacillus does not occur for any length of time in soil, dust, etc., and much of the success in the fight against it depends on keeping human beings in the best possible resistive vitality.

Sources of the Bacilli.—There are two forms of tubercle bacilli that are of main interest, those which exist in human and animal bodies, and especially the cow. For human beings the main source that must be guarded against is man himself, though proper precautions must also be taken against the cow. There is no doubt now that cattle can be infected by human tuberculosis. It is not sure how many of the human bacilli which are virulent for cattle are really bovine bacilli that have been flourishing in human beings; nor is it know how often bovine tuberculosis is transmitted to human beings, since it is rarely possible to determine the time and place of infection. The question cannot be settled merely by the statistics of intestinal lesions, since the upper digestive tract may prove the point of entrance, and the pharynx and tonsils are at times open gateways for the infection. The presence of tubercle bacilli in mesenteric glands is by no means a proof that the infection has come through the food, since bacilli from the air are often caught on the moist mucous surfaces of the mouth and nose, and are eventually swallowed.

(To be Continued.)

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regular Monthly Meeting, held February 25, 1905.

The President, Charles Schram, M.D., in the Chair.

Operative Treatment of Chronic Suppurative Otitis.—The scientific business of the evening was begun by the reading of a paper on this subject by Dr. Arthur B. Duel.

Dangers of Aural Suppuration.—While discharge from the ear has been recognized as dangerous for some time, it is only in recent years that the serious nature of the affection has been fully appreciated. This is of interest to the general practitioner as well as the aurist, because the patients practically always come to the general practitioner's hands first. The danger to life is not great, probably not more than one per cent. of patients suffering from discharging ears are likely to have a fatal termination, but the fact that insurance companies now refuse to take them shows how uncertain is their tenure of life. In olden times, it used to be considered that the checking of the discharge from the ear was itself dangerous. This, of course, was due to the fact that not infrequently on the formation of brain abscess, the discharge from the ear ceases. This has nothing to do, however, with the added danger.

Checking of Discharge.—It is a good rule then to say that no discharge from the ear should be allowed to go unchecked. The checking of it, however, is not an easy matter, and is often one of the most difficult things to accomplish. If the discharge is at all chronic, instillations are usually inadequate to stop it. If there has been middle-ear inflammation with perforation of the drum, this perforation is often too small or is badly placed for drainage purposes, and there is an accumulation of purulent material within the tympanic cavity which keeps up the discharge. As a consequence of this granulations form and the irritant material passing through the meatus may give rise to ecchondroses or exostoses. Douching with water seldom does more than merely wash out the external meatus and does not get at the root of the difficulty.

Treatment of Acute Cases.—All of these discharging ears start as acute inflammation of the tympanic lining of the cavity. If in these cases just as soon as the drumhead showed any signs og bulging or in any way the presence of inflammatory material within the cavity, free paracentesis was done, there would be many fewer chronically discharging ears. The

most important thing to teach the general practitioner at the present moment, so as to secure prophylaxis of that dangerous sequelæ, a discharging ear, is to emphasize the necessity for early and free opening for drainage purposes. As a matter of fact, when discharging ears come to the otologist, they are very often months or years old and any ordinary palliative treatment will accomplish very little for them.

Palliative Treatment.—If there is no necrotic area within the tympanic cavity, as may be determined by means of a probe, then the drumhead should be freely incised, and any granulations that are present within the tympanic cavity should be removed by means of the curette. After this special attention should be given to the nose and throat so as to prevent all reinfection and obviate any difficulties that have their origin at the other end of the Eustachian tube. If proper drainage is then maintained, many cases will become completely well. It is better to insert gauze wicks into the external meatus, which end in an abundant dressing over the ear, than to suggest washing out of the ear. This form of treatment should be continued for three weeks, and then, if no permanent improvement is noted, a more radical operation will be necessary.

Ossiculectomy.—If any necrosis should be found in the tympanic cavity and the treatment thus far carried out does not avail, the small bones of the ear should be removed, and with them the drum membrane. Sometimes where the previous method of treatment has failed, this will give permanent relief even in long-standing cases. Certainly this should be tried before the radical operation is recommended, and there is no doubt that the radical operation is often employed where it is really not necessary. Only long-standing cases that have refused to yield to other methods of treatment should be subjected to it.

Acute Exacerbation.—If acute exacerbations of the inflammatory condition occur, especially with pain or tenderness over the mastoid, then there is danger that the inflammatory condition may spread from the ear to the brain and the radical operation is justified. As a rule, if cholesteatomatous masses have been found in the tympanic cavity or in the external meatus, then the radical operation cannot be avoided. For the success of the radical operation, the most important thing is to carry out the details of the operation so as to leave a perfectly smooth cavity. The dermatization of this can be secured by means of Tertia's skin graft. When these are employed, the scar tissue which forms in the cavity is neither so thick nor is it possessed of such a strong tendency to contract as when the skin grafts are not employed. Not infrequently it happens that the contractility of the scar tissue obliterates whatever sense of hearing there may have been left after the radical operation. It is important that the facial nerve should not be injured, and at times the lateral sinus by anomaly comes very close to the field of operation, and may be injured by careless chiseling. The horizontal semicircular canal must be avoided, since any injury to it would hurt the function of an important sense organ. At times the postauricular wound may be left open for drainage.

Postoperative Course. Usually it can be considered that from four to twelve weeks convalescence will be necessary after the operation. Occasionally a second operation may be needed. The patient may be assured, however, that after the first operation has been done there will be no further risk of intracranial operation, even though the discharge did not stop as soon as was expected. The thorough freedom of drainage with easy exit of pus prevents any infection inward, and the risk is at an end.

Amount of Involvement.—Dr. McKernon, in discussing Dr. Duel's paper, said that one of the cases presented illustrates how serious may be the condition of a discharging ear, even though there is apparently not much pathological change. In this case the whole mastoid is involved, and in cases where the discharge has lasted for years, it is always impossible to say beforehand whether the mastoid is involved or not unless there has been a recent acute inflammatory process in it. With regard to the technic of the operation, Dr. McKernon considers that it is safer to consider the mastoid antrum first, because this enables the surgeon to keep the landmarks of the anatomy of the region well under his eye during the whole course of the operation. Perhaps the most serious accident that may occur is an injury to the sigmoid sinus, for which, however, the surgeon can be scarcely blamed, since the anomaly makes the operation so much more difficult. With regard to skin grafting it seems better that it should be performed secondarily unless after the primary operation there is no blood present. The whole question of skin grafting is as yet under consideration, and it is not certain whether this process adds to the good effect of the operation. Dr. McKernon has seen quite as good results without skin grafts as with them.

Necessity for Operation. Where the discharge continues after five or six weeks, notwithstanding the operation, all the necrotic tissue has not been removed, and a repetition of the operation becomes necessary. In Dr. McKernon's opinion, the radical operation is, however, done rather too frequently than too rarely. Not a few of the cases that are now treated by the radical operation could be quite as effectively cured by treatment through the external auditory canal without the necessity for the deforming radical procedure. If the ossicular chain be removed and the surface of the internal ear thoroughly cleansed and any polypoid material removed curettement of the base of the growth, complete recovery may take place without further bother. Where the discharge has continued for a few months or a year, this may not be so successful. In cases where the discharge has existed only for a few weeks, all that may be necessary may be an incision of the drum membrane that will provide an adequate avenue for drainage. Dr. McKernon considers that the wick method of draining is suitable for private practice where there is a nurse, but if this dressing is handled with the non-sterile methods of the home, then secondary infection will almost surely be set up with serious results.

Necessity for Paracentesis.—Dr. Charles Schram said that the most important lesson in the discussion for the general practitioner is undoubtedly the fact that whenever there is complaint of the ears, and this is especially the case in children in infectious diseases, this organ should be carefully looked to. If there is any bulging of the drum membrane or any signs of inflammation, then an aurist should be called in consultation, and the child may thus be saved months and even years of suffering with all the risk of a discharging ear.

Dr. Duel, in closing the discussion, said that so long as there are definite pathological conditions in the nose and throat infering with the function of the Eustachian tube, the operation should not be

done. If such obstructions as adenoids are not removed, the congestion of the middle ear is kept up and treatment of the ear is not likely to be of much service. On the other hand, treatment of the throat properly done will sometimes cause the cessation even of a discharge from the ear that is continued for a considerable period. Dr. Duel considers that the dressing by means of weights of gauze and a large gauze dressing over the ear is the best for dispensary patients, who can then be let go for two days to have their dressings renewed during the regular dispensary service. The only other method is by syringing, and this is almost as sure to be inadequately done and be the source of danger that non-sterile dressings are. With regard to scar tissue Dr. Duel considers that there is much less of it when skin grafting is done than when it is not. It is the scar tissue which by its contraction diminishes hearing later on after the operation and thus proves one of the serious inconveniences.

Carcinoma of Penis.—Dr. Follen Cabot presented a specimen of carcinoma of the penis removed from a man of forty-two years with some special features in the history. The man had never had sexual intercourse, and had never retracted the foreskin. About three months ago he felt a pimple under the foreskin, and this developed very rapidly until it made quite a large tumor. The patient had had a long foreskin and had suffered somewhat from irritation due to the collection of material beneath it. Dr. Cabot said that in all the cases of cancer of the penis that he had seen the patients have had long foreskins and there seems to be no doubt that the continued irritation of the epithelium of the glans by its foreskin cover has a good deal to do with the eventual establishment of the malignant process. Another interesting feature of these cases he considers to be the fact that cancer of the penis is seen very seldom in members of the Jewish race.

Retention of Dead Fetus.—Dr. Charles Schram presented a specimen of a fetus of some two months which had been retained within the uterus after its death for nearly two months more without giving rise to any serious symptoms. The patient was a woman of thirty-nine years, of good family history, who had had three children, and who had never had an abortion, a miscarriage or a stillbirth. She was a very sensible, intelligent woman, and there seems to be no doubt from her history that impregnation took place about August 17 of last year. On November 10, there was considerable loss of blood, and on her physician's advice, she stayed in bed for three weeks. After this she was well for another three weeks when there was a rather alarming loss of blood. Once more she rested and apparently recovered.

Ultimate Expulsion.—Finally February 21, nearly two and a half months after the first bleeding, the fetus was expelled. There had been no fever, no special tendency to pain and no disturbance of her general condition, hence there had been no interference with the state of affairs in the womb. It is clear now from the appearance of the fetus that death took place on November 10, and the fetus was retained without any evil result. As a matter of fact, the patient was quite comfortable and had been inclined to think during the last month or so that she felt life.

Catheter Phonendoscope.—Dr. Follen Cabot presented a phonendoscope attached to a long catheter. By means of this instrument incrustations in the bladder wall can be easily detected because of the grating that is noted. The ordinary sound will detect the presence of a stone, but if the stone has become encysted, it is usually missed by the ordinary investigation methods. With this catheter phonendoscope detection is almost sure to take place. Ureteral catheters may also be employed in connection with the phonendoscope, and thus the presence of stone in the ureter may be detected easily, and such diagnosis may be confirmed by the X-rays or other methods, as for instance Kelley's wax-tipped catheter.

Paralysis of Soft Palate.—Dr. Scott reported a case in which some weeks ago there was a mild form of subacute pharyngitis. At no time was the patient seriously disturbed, and the pulse and temperature were only slightly elevated. No nasal symptoms were noted, and there was no membrane in the throat. About three weeks after this attack, the patient, a druggist, began to notice that fluids returned through the nose. At first this was only slight, but later it made the taking of fluid material rather difficult. The original attack seemed so slight that no thought of diphtheria occurred, and indeed the patient applied for treatment scarcely more than as a matter of form, the symptoms were so mild. It seems not unlikely, however, that some infection must have been present which had proved of sufficient virulence to set up a neuritis of the nerve supplying the part.

Dr. Duel, in discussing the case, said that it seems not unlikely that in spite of the mild symptoms, the patient really suffered from diphtheria. Such mild cases are not at all infrequent, and are the source of much of the spread of contagion which takes place in large city life. It is a very curiously interesting observation, but one that has been made over and over again that mild cases of diphtheria seem to be followed a little bit more frequently than severe cases by postdiphtheric neuritis and palsies of various kinds. There are no pathognomonic signs of the presence of diphtheria in the throat except the finding of bacillus of diphtheria, and unless suspicions are aroused, mild cases may easily be missed and this is a little more likely to take place in such persons as physicians or druggists or hospital nurses, because the account of their symptoms is taken without any very extensive investigation.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, held April 4, 1905.

The President, Joseph Fraenkel, M.D., in the Chair.

Trophic Disorders in Diseases of the Nervous System.—Dr. William B. Noyes said that many of the most interesting and least understood subjects in medicine could not be claimed exclusively by any one specialty, and the purpose of his paper was to group together cases where changes in the nutrition of the tissues were found closely associated with lesions of the central or peripheral nervous system. In a few instances, this connection would be found to be certain and positive; in others it would be little more than a hypothesis. The practical result of the study would be to turn the attention of the physician treating a seemingly local disease of the skin, joints or other soft parts to a broader view of the case, even if it should bring him face to face with some disorders of the nervous system more difficult to handle than the superficial lesions alone. The skin, the most obvious field for clinical observation, showed most clearly and promptly any change in the general bodily nutrition. The epidermis, hair or nails

might each or all be affected. The hair turned gray or white, became brittle or fell out in conditions of failing nutrition, and the changes, physiological in old age, might appear in a few hours in cases of great mental or nervous shock. General or local alopecia were in many cases directly associated with the functional or organic disorders of the central nervous system. A neuralgia might leave as a permanent mark a patch of gray or white hair. The nails might undergo rapid or gradual change, especially noticeable in multiple neuritis. The skin might suffer atrophy of the cutis, epidermis or both. Senile atrophy of the skin, associated with increased pigmentation of the epidermis and thinning of certain layers was a condition which might, under certain circumstances, be seen earlier in life. An idiopathic diffuse atrophy might develop, with general thinning of the integument, increased prominence of the blood vessels, and a characteristic red color. After division or the destruction by disease of a peripheral nerve, certain well-defined, trophic disturbances of the skin would occur after a time. The skin might also suffer from hypertrophic processes, with hyperplasia affecting different elements of the skin and subcutaneous tissues. Of this an ordinary corn was the most simple example. This might become actively inflamed and develop into an abscess, with the subsequent formation of a perforating ulcer. Such perforating ulcers, though appearing in various nervous diseases, were usually associated with locomotor ataxia. Gasquill, who had carefully analyzed 83 cases, found 32 in tabes, 17 in general paralysis of the insane, 14 in diabetes, eight in alcoholism, 12 in various lesions of the spinal cord, and four were of traumatic origin. It also occured in anesthetic leprosy and syringomyelia. Another disease illustrating hypertrophic changes in the skin was scleroderma, the lesions being characterized by a general induration and immobilitly of the affected tissues. Nearly all acute skin diseases were vascular disturbances. Anemia of the skin might be general or localized; if the latter, it was due to pressure, constriction or spasm of the vessels, and was therefore a vasomotor neurosis. Chronic ergotism would produce similar paralytic conditions of the vessels, with formication, pain, spasm, anesthesia and coldness. It might go on to local gangrene. The extreme type of this condition was seen in Raynaud's disease, a rare trophic disorder, where the vasomotor spasm developed (1) local asphyxia; (2) symmetrical gangrene. The skin diseases whose lesions showed a passive or active hyperemia, including the erythemas and dermatites, embraced few examples where any definite nerve lesion was present. A familiar example might be mentioned in the ordinary chilblains, which were the result of a vasomotor neurosis due to vasomotor paralysis from cold. Erythromelalgia, which all modern text-books on nervous diseases claimed as a clinical entity, was a rare disease, with exaggerated vasomotor changes, associated with burning sensations, pain, redness and local ized swelling. Chronic urticaria was claimed by as high an authority as Unna to indicate some alteration in the nerves of the vessels. Angloneurotic edema, closely related to urticaria, though originating in the subcutaneous tissues, had recently figured extensivly in neurological debates. It stood in the same relation to the central nervous system as exophthalmic goiter, namely, through the sympathetic nervous system. Herpe zoster was most instructive in showing the relation between the skin and the central nervous system. All recent authorities agreed that it was secondary to changes in the nervous system, and was associated with an acute neuritis. This neuritis was dependent upon lesions of the ganglion cells of the posterior roots of the cord. Another disease similar to zoster was pemphigus. Here again organic changes in the spinal cord and peripheral nerves were reported by occasional observers, but these were not as uniform in location as in zoster, and moreover, these nerve lesions were frequently not found at autopsy.

Psoriasis was one of the most frequent and well known of skin diseases. That it had a close relation with the nervous system was not commonly understood by dermatologists, but its close relation to the nervous system was maintained by many authorities. It was more often associated with neurasthenia, hysteria, epilepsy, insomnia and other functional nervous diseases than with definite organic disease of the nervous system.

For the proper nutrition of the skin, muscle, bone or other tissue, the integrity of the trophic center, its peripheral path and its termination was essential. Any localized and sudden disturbance of nutrition, when not due to shutting off the blood supply, was the result of irritation or destruction of peripheral nerve trunks or spinal centers. The nerve endings, if they had not a structural continuity with the tissues, at any rate seemed to modify the nutrition of their cells. It was known that disease of the neurosis, whether intraneural or extraneural in its origin, progressed from the center down the neuron or axis cylinder to the end organs. Then, some irritation or failure in vitality appeared in the tissues, be they skin, muscle, cartilage or bone.

In the concluding portion of his paper, Dr. Noyes discussed the various tropho-neuroses, particularly in their relation to diseases of the joints. Chronic arthritis appeared as (1) chronic serous arthritis; (2) chronic purulent arthritis; and (3) dry ulcerative arthritis. It was the last form that specially interested the neurologist. It was a local disease of the joints characterized by erosion of the cartilages, thickening of the capsule and denudation of bone. It might appear as a disease of old age, or associated with organic nervous diseases, as in Charcot's joint, or associated with chronic rheumatic disease, or as a chronic arthritis deformans. General paralysis of the insane caused changes of the spinal cord almost identical with those of tabes, and sometimes caused Charcot's joint. Another type of Charcot joint was seen in syringomyelia and still another in leprosy. Dr. Noyes then described these different types of chronic ulcerative arthritis, and showed a number of X-ray photographs illustrating the same.

Dr. Henry Rafel said he had frequently heard the statement made that persons with psoriasis were otherwise unusually healthy, and this was in accord with his own experience with those cases.

Dr. Joseph Fraenkel said that many of the points brought up for discussion in Dr. Noyes' paper rested largely on a clinical basis, and it remained for the neurologists to explain the connection between the various lesions of the skin, joints, etc., and the nervous system. A few of the facts in connection with the exhaustive study made by Foerster in a large number of cases of tabes, which seemed to prove that the sensory neuron, in addition to the conduction of sensation, wes a very important factor in the nutrition of tissues.

Two Cases of Acute Homonymous Hemianopsia.—These were reported by B. Sachs. The first patient was a man, sixty-three years old, an upholsterer, who had been married thirty years. His family history was negative. The patient had suffered from midwinter cough, with some dyspnea on exertion, for many years Eighteen months ago he had slipped and fallen, striking his head; he was dazed for a time, but was able to get up without aid and walk home. His urine was normal. For some time he had noticed an impairment

of his sight, particularly at night, when he had to give up reading. The patient was admitted to Mt. Sinai Hospital on March 4, 1905. Four weeks previous to that time he had suddenly noticed that he could not see an object approaching him on the left side. Pupillary reflexes were normal. There was no double vision, or other visual symptoms. No headache nor vomiting. No hemianesthesia; no ataxia; no evidence of hemiplegia. Examination showed nothing but a left homonymous hemianopsia, the outer field of the left eye and the inner field of the right eye being obscured. The interesting point about the case, Dr. Sach's said, was that the condition occurred in a man sixty-three years of age, of infantile physique, and was apparently due to a thrombosis of one of the branches of the posterior cerebral artery, and there was an absence of the usual symptoms following a thrombosis of one of the branches of the middle cerebral. As to the site of the lesion, in the absence of hemianesthesia and hemiplegia, it must have either involved the optic radiations, or possibly the visual center in the occipital lobe. The only symptom being an hemianopsia, and without local pain. The speaker said he was inclined to believe that it was due to an area of softening involving the optic radiations.

The second patient was a young woman aged eighteen years. The history she gave was that she had been suffering from a slight nasal catarrh, and a few days ago, on blowing her nose, she was suddenly seized with an intense headache and a feeling as though something had burst in the back of her head on the right side. She also immediately noticed that something was wrong with her vision. The only symptom her physician could find was a left lateral hemianopsia, and this diagnosis had been made also by Dr. Charles L. Dana, who had previously seen the patient. As to the cause of the lesion in this case, the diagnosis rested between a hemorrhage and an embolism. The girl had a distinct cardiac murmur and a dilated right heart, probably the remains of an old endocarditis. The speaker said he was inclined to believe that with an embolism the general shock would have been greater than it was. On the other hand, the intensity of the headache, and the rapidity with which the symptoms were developed seemed to point to a hemorrhage as the cause of the trouble, in spite of the doubtful heart condition.

A Case of Diplopia.—This was also reported by Dr. Sachs. The patient was a man thirty-five years old, a resident of the South, who, on November 1, 1904, was thrown from his buggy, striking on his head. He was unconscious for twelve days after the accident. When he regained consciousness, the physician who attended him noticed a slight difficulty of speech, and a little stiffness when he attempted to walk, but there was no paralysis. When Dr. Sachs first saw the patient, about two weeks ago, the only symptom he could find was a peculiar form of diplopia, apparently resulting from a paralysis of the left superior oblique muscle. This was confirmed by Dr. A. Wiener, the oculist. This muscle was deficient, and gave rise to two vertical images. The case was interesting because of the comparatively slight residue of what was apparently a severe traumatic hemorrhage in the vicinity of the fourth nerve muscles.

Dr. Arthur C. Brush said that cases of hemianopsia like those reported by Dr. Sachs were not particularly rare. In one case that came under his observation the patient was a young man, an athlete with a much hypertrophic heart and thickened arteries, who at the end of a bicycle ride from Coney Island to Brooklyn suddenly felt dizzy and could not see. When Dr. Brush saw him on the following day there was a distinct hemianopsia, and nothing else. The man was totally blind on one side of each retina. His only other symptom consisted of severe mental depression. The hemianopsia was permanent. Another case seen by Dr. Brush was that of a young woman of thirty years, who stated that on attempting to lift some heavy weight she suddenly became dizzy, accompanied by vomiting and headache and partial loss of vision on one side, which on examination proved to be due to a hemianopsia. In both of these cases there was evidently a predisposition to the occurrence of arterial lesions. Where the particular lesions were in these cases the speaker said he did not know.

Dr. William M. Leszynsky said that during the last four or five years he had seen several cases of complete homonymous hemianopsia at the Manhattan Eye and Ear Hospital. In the absence of evidence of involvement of any other portion of the optic tract, he was forced to conclude that the lesion was situated in the cuneus, being due to hemorrhage or thrombotic softening. All the patients were about fifty years of age.

Dr. J. Ramsay Hunt said that last summer he saw a woman of sixty years who suddenly developed an isolated paralysis of the right superior oblique muscle. She was examined by Dr. Colman W. Cutler and showed the characteristic diplopia. There were, however, no other evidences of acute nervous disease. On account of her age, a vascular lesion in the bulb or pons might be suspected, but the paralysis cleared up entirely within two weeks. Before going to bed she had washed her hair, and the next morning the impairment of vision was noted, accompanied by a neuralgic pain in the orbit, and a tendency to dizzines. There was no vomiting. In the experience of ophthalmologists, Dr. Hunt said, these cases are not extremely rare, and they interpret them as rheumatic neuritis of the trochlearis nerve. Dr. Hunt said he recalled a case in which the hemianopsia was complete, and was evidently syphlitic in origin. In another case a man rather advanced in life, the hemianopsia appeared suddenly with vertigo and headache. In such a case the lesion is probably situated in the occipital branch of the posterior cerebral artery.

Dr. Leszynsky said that paralysis of the superior oblique was not uncommon, and when it did occur, it was often difficult to tell whether the diplopia was due to paralysis of the superior oblique or the inferior rectus. The correct interpretation of the condition required a long and careful study of the false image associated with the diplopia. The speaker said he had never seen the superior oblique involved simply as a residual symptom.

Dr. Sachs, in closing, said he did not wish to be understood as saying that he regarded hemianopsia as a very rare condition. In both of the cases he had reported the hemianopsia came on in a very acute fashion, and was unaccompanied by other symptoms. Of course, the symptom was not uncommon in cases of cerebral paralysis. The speaker said he had never seen a paralysis of the superior oblique as the sole residuum of a rather severe injury, such as that reported in his first case.

Yellow Fever on Ship From Colon.—There is now a case of yellow fever in the observation hospital on Swinburne Island, landed there on Tuesday from the steamship Seguranca, arriving from Colon. Dr. Alvah H. Doty, Health Officer of the Port, halted the ship on her arrival and caused the patient's removal to the observation hospital. He is Frank O'Leary, twenty-eight years old.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held February 15, 1905.

The Vice-President, R. E. Van Gieson, M.D., in the Chair.

Asepsis and Antisepsis in Obstetrics; Sterile Gauze and Sterile Water.—Dr. J. M. Mabbott read a paper with this title. He said he had seen the uterus packed with "sterile gauze" after curettage in a mild case of puerperal septicemia, and at the end of 24 hours the gauze had a putrid odor much more offensive than any which had existed before. Even though gauze were impregnated with an antiseptic, if its meshes contained air, it might actually prove a source of infection. The uterus is a natural incubator. Therefore, avoid using gauze in the puerperal uterus or vagina except where packing or drainage seems very important, and when used remove it at the earliest permissible moment. Sterile water, exposed to the air, is sterile only while it is too hot for any use in midwifery; but one part of corrosive sublimate in 10,000 or 12,000 of water will keep the water sterile when cool. Ordinarily a bichloride solution of 1 to 2,000 is sufficient and suitable for all external purposes, and a 1 to 4,000 solution internally. Lysol, one or two per cent. keeps the examining fingers and the mucous membranes slippery, and vaseline and other lubricants are seldom necessary. When there is not sufficient time to properly sterilize the hands, rubber gloves should be worn. Having described minutely the precautions he advised in cases of midwifery, Dr. Mabbott said that when they were observed no vaginal douche need be employed in normal cases, either before or after delivery. A single vaginal douche should usually be given after instrumental delivery, perineorrhaphy, or a tedious labor. In all cases, beginning with the second week after delivery, a vaginal douche (1 to 4,000) is given once or twice daily until the lochial discharge ceases. In febrile cases and where the lochia develops the slightest bad odor, vaginal or intra-uterine douches, associated with digital examination, are indicated. Immediately after labor, when the danger of poisoning from absorption is greatest, nothing stronger than 1 to 8,000 should be employed in the uterine cavity. Rubber gloves are particularly useful in protecting the hands when it is necessary to examine a case already septic.

Perineum, Perineorrhaphy and Prolapse.—Dr. A. Sturmdorf read a paper with this title. Many of the procedures devised for the repair of the perineum, he said, defeat the object of operation by substituting, for normal physiological support, a pathological obstruction, represented by a cicatricial mass uniting dissimilar tissues and serving as a mere retention plug at the vaginal outlet. The keynote in the clinical significance and therapeutic indication of pelvic floor laceration is *prolapse;* while immediate, intermediate and later perineorrhaphies represent respectively the prophylaxis and cure of such prolapse. Our knowledge of the nature of pelvic visceral support has been considerably amplified in recent years, but has not yet reached finality or precision. The ancient cutaneous perineum is obsolete, the so-called perineal body has dwindled in dignity as its purely complementary function became manifest, and at the present time the muscular and fascial equipment of the pelvic floor and viscera sways the gynecological mind in the questions of genital support. It is a fact that many technically perfect perineorrhaphies utterly fail to restore, and often aggravate, the distortion of visceral equilibrium. The muscle or ligament is not created that can permanently withstand, by its structural resistance, the continuous force of intra-abdominal pressure. Briefly stated, intra-abdominal pressure is the resultant of several components, the most potent of which are muscular contraction, gravity, and intravisceral and atmospheric pressure. Having explained in detail the various elements entering into the preservation of visceral equilibrium, he went on to say that the gravity of perineal lacerations is proportionate to the resulting impairment of its muscular function. Such impairment evidences a tendency to prolapse, not because any direct support of the viscera is secured, but because the equilibrium of intra-pelvic pressure is disturbed and its expulsive force undeflected. A union of muscle to fascia will restore perineal bulk, but it does not restore function, and it cannot be sufficiently emphasized that the accurate readjustment of the original anatomical elements essential for the full restoration of function is attainable to the fullest degree only in the immediate operation. Furthermore, proper readjustment of the injured parts demands suture on the lines and to the extent of the laceration both within and without the parturient canal. To facilitate accurate readjustment of original anatomical relations the preliminary introduction of what may be termed guide sutures will be found helpful, time-saving, and to some extent prophylactic. At some convenient moment prior to the descent of the fetal presenting part, two or three silkworm sutures are introduced into the structures between the vagina and rectum, from the cutaneous base of the perineum to its apex. These ligatures, which are loosely tied, may be discarded if found unnecessary. On the other hand, one or more may be retained, according to indications, and tied permanently. In the event of extensive injury they will serve as guides and retentive bands, facilitating permanent coaptation. The location, extent, direction and effect of perineal lacerations, show no uniformity, and it follows that no stereotyped method can possible find uniform adaptability. There should, however, be some method in perineorrhaphy, and such method must be based upon a clear conception of the functional relations of the perineum as a link in the supporting mechanism of the pelvic contents. If the immediate operation has been omitted or has proved a failure, the first essential in the late operation is the recognition of the degree to which the individual links of the supporting mechanism are involved. Every pathological condition of the uterus should be corrected, to restore its function as a deflecting lever, before perineal repair is attempted; the inovulational disturbances induced by lacerations of the cervix demanding special consideration. Immediate trachelorrhaphy would correct this most frequent cause of subinvolution, and is worthy of more general adoption. Dr. Sturmdorf referred to two forms of vaginal protrusion resulting from perineal lacerations, which he said might be described as false and true prolapse. False prolapse is the simple protrusion of redundant and relaxed wall, while true prolapse is represented by the vaginal herniæ of bladder, rectum and uterus. The surgical objective point in these latter cases must be that part of the perineal musculature usually involved in puerperal injury, namely, the broad anterior loop of the levator ani. Under all conditions of perineal rupture the pubic attachments of this levator loop present permanent palpable ridges. Utilizable remnants of the levator muscle can thus be readily located, and, after isolation and trimming, should be coaptated by buried end-to-end sutures. The readjustment of the intravaginal conditions will vary according to the nature and extent of the original lesion and its consequences.

The Value of Mercurial Salts in Obstetrical Practice.—Dr. Charles Jewett desired to emphasize one point, the value that he attached to the mercurial salts, which appeared to have the practical advantage over other antiseptics of disinfecting the skin. He preferred the cyanide, which while equally efficient as the dichloride, was kinder to the hands and had the further advantage of not corroding instruments.

Some of the Precautions Advised Extreme.—Some of the precautions recommended by Dr. Mabbott were no doubt extreme, but still they appealed to him because the patient was entitled to all the protection that we could give her. As to the douche after labor, he was not accustomed to employ it except for the purpose of controlling hemorrhage. His plan was to allow the patient to get up to use the commode. There were always clots to get rid of, and this practice also facilitated the ordinary lochial discharge. He had known mercurial poisoning to result from a single injection. Gloves he thought of advantage for young practitioners. The hands should always be kept clean and never allowed to become infected.

Perineorrhaphy.—The views expressed by Dr. Sturmdorf seemed to be very similar to those of Dudley, of Chicago. Dr. Jewett thought that the operation for the repair of the pelvic floor would be successful just to the extent to which the fascial attachments could be restored. It was requisite that the sutures should be passed at right angles and should have a wide sweep. As to the cause of prolapse, the primary factor is the injury to the so-called perineal body. This takes away the support of the anterior wall of the rectum, and rectocele results. In order to restore the uterus permanently it is necessary not only to perform the plastic work commonly done, but also to maintain the uterus in its normal position.

Prophylactic Suturing Injudicious.—Dr. E. H. Grandin said that as to what Dr. Sturmdorf called the prophylactic suturing of the perineum, this would seem to be advisable if we could tell in advance that there was going to be a laceration of the pelvic floor, and, furthermore, in what direction it would take place. As it was impossible to do this, this suggestion did not appeal to him. Should no tear occur, there would have been made a number of wounds through which infection might take place.

The Proper Time for Perineorrhaphy.—As to the time for operation after a laceration has occurred, he had held for a number of years that except the injury were slight, it was generally best to wait for from five to seven days. Immediately after labor the patient was exhausted, blood was running down from the uterus, and it was questionable whether it was possible to adjust tissue to tissue. He preferred Boldt's intermediate perineorrhaphy, and in this surgical procedure the longer we waited after the time specified, the greater would be the liability to meet with cicatricial tissue. He thought that hernia should now be substituted for the old term rectocele, since the condition really was a hernia. When we were dealing with retroversion and hernia the first step was to cure the hernia and the second to lift the uterus. The latter could be done only in one way, namely, by opening the abdomen and suspending the organ.

The Intermediate Operation Best.—Dr. H. J. Boldt said that, like Dr. Grandin, he thought the intermediate operation the one of choice. The best time to repair the vaginal outlet was a few days after delivery, and this was true also as regards lacerations of the cervix. For complete tear (through the sphincter) the Lawson Tait operation had given him the most satisfaction.

The Question of Asepsis.—Dr. S. Marx said that, except for the external parts, he had given up the use of water before and during labor. The normal vagina and uterus were sterile. It must be presupposed that the hand and arm of the accoucheur are sterile, and the introduction of a sterile limb into a sterile organ will do no harm. He was therefore accustomed to make just as many examinations as he thought necessary and to practice such manipulations as were required. In cases of hemorrhage he never washed out the uterus, depending upon pressure. If necessary, a firm uterine tamponage was resorted to.

Preliminary Sutures Harmful.—He could not but look with disfavor on preliminary guide sutures. In the hands of the general accoucheur laceration of the perineum occurred in about 16 per cent. of primiparæ and five per cent. of multiparæ. In 84 per cent. of cases such sutures were therefore entirely unnecessary, and, as Dr. Grandin had pointed out, one could not tell where the laceration would go when it did occur. The worst tears were the hidden ones, and they could not be prevented by the prophylactic guide sutures. While such prophylaxis might be attractive, theoretically, practically it would prove harmful.

The Chlorine Method of Disinfection.—Dr. G. L. Brodhead said that for the past year or two he had made use of the chlorine method for sterilizing the hands. After a thorough rubbing with pumice stone the acetic acid and lime solution was employed. As a further precaution, rubber gloves were worn. Before labor the douche was not indicated, and after labor only in case of hemorrhage. Here the tampon was sometimes required.

Episiotomy.—He had had no experience with prophylactic sutures, but believed that when a tear seemed inevitable, episiotomy would be much better. When laceration had occurred he would, under ordinary circumstances, advise immediate perineorrhaphy if the patient were not exhausted.

Sepsis Generally Due to Retained Secundines.—Dr. H. N. Vineberg thought too much stress was laid upon the care of the hands. Practically 90 per cent. of the cases of sepsis, he said, were due to retained secundines. In Germany one authority thought he had solved the problem by inserting the hand into the uterus in all cases, and removing the clot always found in the cervix.

Early Perineorrhaphy.—He could not see the value of waiting five days or more to perform perineorrhaphy, and thought it should be done either immediately or in from twenty-four to thirty-six hours after delivery.

Dr. Sturmdorf said that he had mentioned the preliminary suturing only as a measure for the occasional operator. Of course the sutures were to be made with all precautions, and there was no more danger that the wounds thus occasioned would become infected than that the slight lacerations so commonly seen in primiparæ should do so.

The Gynecologist and the General Surgeon.—The last paper of the evening was read by Dr. Brooks H. Wells, on this topic. He referred to several cases of mistakes made by general surgeons and went on to say that instances like these made him feel that there is reason and necessity for the continued existence of the gynecological surgeon, for only by long training and extensive clinical experience could the necessary skill in diagnosis, accuracy in judgment, and finish in technic be acquired through which similar errors could be avoided. Without these special qualifications accurate diagnosis cannot be made, the number of unnecessary operations is increased, the conditions after opera-

tion are often unsatisfactory, and the operative mortality is always unnecessarily high. Gynecology, while theoretically limited to the pelvis, must practically include the surgery of the abdomen in women. This work can be best done by those who have had the most thorough training in its intricacies. If we admit that there is room and necessity for the special study of gynecology, and, further, that it is a broad and important portion of medicine, we must also admit that one whose life-work has been devoted to its study must be more competent to solve its problems than one who regards it only as an incident in his practice of general medicine and surgery.

BOOK REVIEWS.

Studies in General Physiology. By Jacques Loeb, University of Chicago Press, Chicago, Ill.

Those who have had the pleasure of following Dr. Loeb's work as briefly outlined in his "Physiology of the Brain" will be glad to be able through the reprint of many of his papers to carry through in this work some of his physiological studies, from his inaugural dissertation at Würzburg in 1889 to the present time. The present series consists of 37 studies, beginning with fundamental investigations of heliotropism in animals, studying geotropism, and passing on to the general physiology of worms, and the influence of light on the development of organs in animals. From these physical relations he passes to the major subject of his later investigations, namely, the influence of chemical surroundings on life and development. It would be impossible even to summarize the many interesting results embodied in these papers, and we can commend them as instructive and well worth while, not only for the student of physiology but for the practitioner interested in the general biological relations of every-day life.

Text-Book of Human Physiology. By L. Landois. Edited by Albert P. Brubaker, M.D. Translated by Augustus A. Eshner, M.D. Tenth Revised and Enlarged Edition. P. Blakiston's Son & Co., Philadelphia.

The student of ten years ago was well acquainted with "Landois and Sterling," which was a Fourth English Edition. Since that early date at least three editions have been published in Europe, and Dr. Eshner has just translated this new tenth edition, and Dr. Brubaker has revised and edited it.

Appearing as it does in one volume at this time it presents a more convenient form than the previous two-volume edition. Little need be said regarding the value of this work. It is recognized as one of the best of the modern works on this subject. The student as well as the practitioner is fortunate in having it brought up to date in this edition. The condensation into one volume unfortunately necessitates the use of small type, closely set, but for young eyes this is no great disadvantage.

A Text-Book of Physiological Chemistry. By Olof Hammarsten. Translated by John A. Mandel, Sc.D. Fourth Edition. John Wiley & Sons, New York.

We have had occasion to comment on a previous occasion on Hammarsten's text-book as translated by Dr. Mandel. In the present edition not only many advances in chemistry made in the past ten years, but also the author's richer experience in book construction contribute to render it even more acceptable than the previous one.

BOOKS RECEIVED.

Medical Diagnosis. By Dr. A. W. Hollis. 8vo, 319 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

Diseases of the Heart. By Dr. E. H. Colbeck. Second edition. 8vo, 350 pages. Illustrated. W. T. Keener & Co., Chicago.

The International Medical Annual. Twenty-third year. 1905. 8vo, 644 pages. Illustrated. E. B. Treat & Co., New York.

Practical Pediatrics. By Dr. E. Graetzer. Translated by Dr. H. B. Sheffield. 8vo, 542 pages. F. A. Davis Co., Philadelphia.

Chemical and Microscopical Diagnosis. By Dr. F. C. Wood. 8vo, 745 pages. Illustrated. D. Appleton & Co., New York and London.

Eye, Ear, Nose and Throat Nursing. By Drs. A. E. Davis and B. Douglass. 8vo, 318 pages. Illustrated. F. A. Davis Co., Philadelphia.

Studies in General Physiology. By Dr. J. Loeb. Parts I and II. 8vo, 787 pages. Illustrated. University of Chicago Press, Chicago.

Medical Examination for Life Insurance. By C. L. Greene. Second edition. 8vo. 466 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Bacteriology in the Public Health. By Dr. Geo. Neumann. Third edition. 497 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Transactions of the New Hampshire Medical Society. 113th anniversary. 8vo, 217 pages. Illustrated. The Rumford Press, Concord, N. H.

First Annual Report of the Henry Phipps Institute of Tuberculosis. 8vo, 265 pages. Illustrated. Henry Phipps Institute, Philadelphia.

Transactions of the American Roentgen Ray Society. Fifth annual meeting. 8vo, 182 pages. Illustrated. A. H. Sickler Co., Philadelphia.

Elements of Anatomy and Physiology for Nurses. By Dr. W. B. Secretars. 12mo. 74 pages. Illustrated. The Scientific Press, London.

Conservative Gynecology and Electrotherapeutics. By Dr. G. B. Massey. Fourth edition. 8vo, 467 pages. Illustrated. F. A. Davis Co., Philadelphia.

Recurrent Effusion Into the Knee-Joint After Injury. By Sir Wm. Bennett. 8vo, 29 pages. Longmans, Green & Co., New York and London.

A Handbook of Nursing. Published by the Connecticut Training-School for Nurses. 12mo, 319 pages. Illustrated. J. B. Lippincott & Co., Philadelphia.

German-English Dictionary of Medical Terms. By Dr. Hugo Lang. Edited by Dr. B. M. Abrahams. 8vo, 598 pages. P. Blakiston's Son & Co., Philadelphia.

The Development and Technic of the Modern Mastoid Operation. By Dr. F. Whiting. 8vo. 353 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Manual of Psychiatry. By Dr. J. R. de Fursac. Translated by Dr. A. J. Rosanoff. Edited by Dr. J. Collins. 8vo, 352 pages. John Wiley & Sons, New York.

The Urine and Feces in Diagnosis. By Drs. O. Hensel, R. Weil and S. E. Jelliffe. 8vo, 334 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

Malformations of the Genital Organs of Women. By Dr. C. C. Debierre. Translated by Dr. J. H. C. Simes. 12mo, 182 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Medical Jurisprudence. Wharton and Stillé. Volume II. Poison. By Drs. Robert Amory and R. L. Emerson. Fifth edition. 8vo, 860 pages. Lawyer's Co-operative Publishing Co., Rochester, N. Y.

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ORIGINAL ARTICLES.

THE VALUE OF LUMBAR PUNCTURE: WITH PARTICULAR REFERENCE TO THE DIAGNOSIS OF TUBERCULOUS MENINGITIS.[1]

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IN order to study the pathological changes which occur in the cerebrospinal fluid in disease of the brain and spinal cord, it is necessary to have a clear conception of the character of this fluid in normal healthy individuals.

Since Quincke, in 1891, first published his method of performing lumbar puncture, our knowledge of the subject has enormously increased. At that time it was advocated principally as a therapeutic procedure, while now its broadest field is that of diagnosis. Then it was rarely practised, but to-day it is resorted to as frequently and fearlessly as the puncture of the chest in suspected empyema. Its therapeutic value, both as a palliative and curative measure, will not be entered into here.

The method of procedure as advised by Quincke, and to this day practised with but slight modifications, is too familiar to need repetition, the only point which might be emphasized being its absolute harmlessness when done aseptically, and the caution to stop the flow of fluid when the pressure has reached 20-25 mm. of mercury. This, according to Pfaundler, is the normal subarachnoid pressure in the sitting position, about one-half of which disappears when the patient lies down. In case of tumor of the brain, particularly of the cerebellum, the procedure is not without risk, several sudden deaths having been reported after withdrawal of comparatively small amounts of fluid.

The amount of cerebrospinal fluid in normal individuals varies,, but the consensus of opinion is that it is never very large, usually measuring less than 10 c.c. Under pathological conditions, however, it may be increased, even up to several hundred cubic centimeters.

The normal fluid is always absolutely colorless. This, as can be seen by reference to Table I, is also true for cases of tumor of the brain or spinal cord, brain abscess, hydrocephalus, tabes, auto-intoxication, meningeal irritation, etc., —in fact, for all fluids withdrawn in cases not due to inflammation of the meninges. In tuberculous meningitis, while at first glance the fluid may appear to be colorless, on comparing it with a tube of distilled water, as recommended by Wentworth, it is usually seen to be slightly opalescent. Bernheim and Moser even found it necessary at times to gently shake the fluid while examining by reflected light, to determine the cloudiness. The depth of color depends upon the number of cellular elements present. Purulent meningitis may give a yellowish fluid, while hemorrhages into the ventricles, trauma to the head or spine, sinus thrombosis, or puncture of a blood-vessel by the trocar, may give a bloody fluid. If the blood has remained in the spinal canal for any length of time, it may even be distinctly brown in color on withdrawal.

In reaction the fluid is faintly alkaline both in health and disease, the amount of alkalinity varying between 0.3 and 0.5 to phenolphthalein. In meningococcus cases, if the fluid be allowed to stand at room temperature for several days, the growth of the meningococcus may make the reaction faintly acid.

Regarding the specific gravity, authorities are well agreed that it usually ranges from 1.001 to 1.009.

The question as to the formation of a fibrin net is of considerable diagnostic importance. In cases of tuberculous and purulent meningitis it is seldom absent after standing six to twelve hours in the ice-box, while in cases of tumor or abscess of the brain, sinus thrombosis, hydrocephalus, meningeal irritation, etc., it never forms even after many days. Wentworth even goes so far as to state that the slightest cloudiness of the fluid, with the formation of a fibrin net, is pathognomonic of an inflammatory exudation in the meninges, and is never absent in cases of meningitis.

Albumin is a normal ingredient of the cerebrospinal fluid, being present in amounts varying from 0.2 to 1.0 parts in 1,000. In tuberculous fluids it is somewhat increased, while in purulent meningitis cases, it is considerably above the normal. Heller's contact ring test, as used for urines, is a quick and reliable method of estimating the comparative amount of albumin present. In healthy persons, and in such cases as are tabulated in Table I, we get a very faint or no ring. Gerhardt finds the amount of albumin increased, not only in inflammatory conditions, but also in cases of hydrocephalus, tumor, cerebral lues, and paralysis. The writer has at times failed to confirm this statement. It is important that no blood be present if the test is to be of any value.

With reference to the presence of sugar we can do no better than quote the conclusions reached by Comba:

"I. That in the cerebrospinal fluid drawn during life from a healthy person, there constantly

[1] The conclusions reached in this paper are based on the examination of 265 cerebrospinal fluids received in the laboratory from the various services of the hospital, since August, 1902, at which time the writer entered upon his duties.

exists a glucose-like reducing substance. The average quantity is 4 to 5 centigrams to 100 c.c.

"II. In tuberculous meningitis the glucose is found in small amounts at the onset, but is absent toward the end.

"III. In purulent meningitis glucose is always absent.

TABLE I.—NON-INFLAMMATORY FLUIDS.

No.	Color	Sugar	Cytology: Mononuclear leucocy.	Cytology: Polynuclear leucocy.	Clinical Diagnosis
1	clear	neg.	very few	very few	Tumor of brain
2	clear	neg.	very few	very few	Tumor of brain
3	bloody	neg.	very few	very few	Tumor of brain
4	clear	reduction	very few	very few	Tumor of brain
5	clear	reduction	none	none	Tumor of brain
6	clear	reduction	very few	very few	Tumor of brain
7	sl. bloody	neg.	few	few	Brain abscess
8	clear	neg.	none	none	Brain abscess
9	sl. bloody	neg.	blood	blood	Brain abscess
10	clear	neg.	none	none	Tabes
11	clear	reduction	80%	20%	Pseudotabes
12	clear	reduction	very few	none	Tabes
13	clear	neg.	none	none	Hemiplegia
14	clear	reduction	very few	none	Amaurotic family idiot
15	bloody	neg.	blood	blood	Inf. cereb. palsy
16	bloody	reduction	blood	blood	Multiple neuritis
17	bloody	....	blood	blood	Meningeal irritation
18	sl. bloody	neg.	blood	blood	Embolism
19	bloody	....	blood	blood	Embolism
20	clear	neg.	very few	none	Cerebellar hemorrhage
21	bloody	reduction	35%	65%	Cerebellar hemorrhage
22	clear	reduction	many	few	Insolation
23	clear	neg.	83%	17%	Hydrocephalous
	clear	neg.	85%	15%	Hydrocephalous
	bloody	....	moderate	few	Hydrocephalous
	bloody	neg.	66%	34%	Hydrocephalous
	sl. bloody	neg.	70%	30%	Hydrocephalous
	clear	neg.	60%	40%	Hydrocephalous
24	clear	reduction	very few	very few	Hydrocephalous
	clear	reduction	very few	very few	Hydrocephalous
25	bloody	reduction	blood	blood	Hydrocephalous
26	sl. bloody	neg.	few	moderate	Pacchymeningitis chronica
	sl. bloody	neg.	few	few	Pacchymeningitis chronica
	clear	reduction	few	moderate	Pacchymeningitis chronica
27	clear	neg.	none	none	Pneumonia
	clear	neg.	none	none	Pneumonia
28	bloody	....	blood	blood	Pneumonia
29	clear	neg.	few	moderate	Pneumonia
	bloody	....	....	....	Pneumonia
30	clear	reduction	none	none	Pneumonia
31	clear	reduction	very few	very few	Pneumonia
32	clear	neg.	very few	very few	Pneumonia
33	clear	reduction	none	blood	Influenza
34	clear	reduction	very few	very few	Typhoid
35	clear	reduction	none	none	Typhoid
36	clear	reduction	few	few	Typhoid
37	bloody	neg.	blood	blood	Enteritis
38	clear	neg.	few	few	Colitis
39	clear	neg.	few	few	Auto-intoxication
40	clear	....	none	none	Auto-intoxication
41	clear	neg.	few	none	Tetanus
42	bloody	neg.	blood	blood	Sepsis
43	clear	reduction	very few	very few	Uremia
44	clear	reduction	few	very few	Acromegaly
45	bloody	reduction	moderate	blood	Trauma to head
46	clear	reduction	reduction	few	Trauma to head

The diagnoses given are those in the hospital "Admission and Discharge Book."

Fluids Nos. 32 and 36 showed many endothelial cells.

The quantity of albumin is based upon the depth of the contact ring test.

In all of these patients microscopical and cultural examination yielded negative results. The amount of albumin varied from 4 to 6 mm.; in Nos. 3, 17, 28, 33, 37, 40 and 45 it was regular.

"IV. The diminution and disapearance of glucose in the cerebrospinal fluid are probably due more to the glycolytic action of the nucleoproteids of the leucocytes than to that of the bacteria contained in the exudate.

"V. The proportion of glucose is less than that of the blood, which tends to prove that it is a product of secretion, rather than of transudation."

The writer fully concurs in these statements with the exception that he has never been able to demonstrate the presence of glucose at any stage of tuberculous meningitis. See Table II.

This glucose-like substance as found in normal cerebrospinal fluids, is capable of reducing Fehling's copper solution, but leaves Nylander's solution unaffected. It is incapable of undergoing fermentation and is ordinarily regarded as pyrocatechin. Its absence in tuberculous and purulent meningitis makes it an important diagnostic help.

TABLE II.—TUBERCULOUS FLUIDS.

No.	Microscopic	Cytology: Mononuclear Leucocytes	Cytology: Polynuclear Lyncocytes	Days Antemortem.
1	tubercle bacilli	++	+	4
2	tubercle bacilli	+++	+	1
3	negative	+++	+	6
	tubercle bacilli	+++	+	1
4	tubercle bacilli	+++	+	3
5	negative	+++	+	5
	tubercle bacilli	+++	+	1
6	negative	+++	+	11
	negative	+++	+	3
	tubercle bacilli	+++	+	2
	tubercle bacilli	+++	+	1
7	tubercle bacilli	+++	+	5
8	tubercle bacilli	+++	+	1
9	tubercle bacilli	+++	+	1
10	tubercle bacilli	++	+	8
11	tubercle bacilli	++	+	12
12	tubercle bacilli	+++	+	6
13	tubercle bacilli	+++	+	5
14	negative	no fluid	no fluid	3
	negative	no fluid	no fluid	2
15	tubercle bacilli	+++	+	1
16	negative	++	++	8
	negative	++	++	6
	tubercle bacilli	++	++	2
17	tubercle bacilli	+++	+	1
18	tubercle bacilli	97%	3%	2
19	tubercle bacilli	blood	blood	6
20	tubercle bacilli	+++	+	1
21	tubercle bacilli	97%	3%	10
22	tubercle bacilli	70%	30%	2
23	negative	45%	55%	3
	negative	blood	blood	1
24	tubercle bacilli	+++	+	8
	tubercle bacilli	85%	15%	2
25	tubercle bacilli	+++	+	1
26	tubercle bacilli	+++	+	2
27	tubercle bacilli	65%	35%	7
28	tubercle bacilli	60%	40%	9
29	negative	40%	60%	8
	tubercle bacilli	35%	65%	1
30	tubercle bacilli	50%	50%	2
31	tubercle bacilli	85%	15%	1
32	tubercle bacilli	85%	15%	2
33	tubercle bacilli	80%	20%	1
34	tubercle bacilli	90%	10%	2
35	tubercle bacilli	90%	10%	2
36	tubercle bacilli	80%	20%	1
37	tubercle bacilli	85%	15%	1
38	tubercle bacilli	78%	22%	7
39	tubercle bacilli	90%	10%	2
40	tubercle bacilli	70%	30%	8

In this series the cultural results were negative; the amount of albumin varied from three to six mm.

The crosses represent the comparative number of mononuclear and polynuclear leucocytes.

The two negative cases were proved to be tuberculous by guinea-pig inoculation. One of these cases (No. 14) could justifiably be disregarded because the amount of fluid received at the laboratory was too small (4 c.c. and 1 c.c. respectively) and too bloody to be of much use.

Of more diagnostic value than any of the foregoing is the careful cytological examination of the fluid. For this purpose the centrifuge should be used and spreads made from the sediment. Here again the presence of blood must be carefully avoided, since by its presence an artificial polynuclear leucocytosis is caused, which will make the result unreliable. A lack

of attention to this point may account for the many discrepancies found in the literature.

Unfortunately we can formulate only general rules as to the significance of the cytological findings. At one time it was thought that the presence of many mononuclear leucocytes pointed positively to a tuberculous meningitis, and that the predominance of polynuclear leucocytes made the diagnosis that of a purulent meningitis. Thus Widal, to whom we owe much for the researches along this line, shows the relationship existing between the cytological picture and the etiology of meningitis, by reporting three tuberculous cases, all of which showed almost exclusively lymphocytes. Pfaundler makes the statement that "mononuclear leucocytes only occur in large numbers in tuberculous meningitis cases." But on looking over the further work done on this subject, we must regard these positive statements as erroneous, for acute tuberculous meningitis may show an increase of the polynuclear leucocytes, and a chronic purulent meningitis may show the reverse. Marcon and Mutzner report an interesting case, in which the cerebrospinal fluid contained mainly polynuclear leucocytes, and yet the autopsy revealed a well-advanced tuberculous meningitis. As a general rule, however, it is true that a mononuclear leucocytosis goes with a tuberculous, and a polynuclear leucocytosis with a purulent meningitis. In the 51 fluids from cases of tuberculous meningitis tabulated in Table II, only three fluids proved exceptions to this general rule.

Nissl also finds a lymphocytosis in cases of syphilitic paraplegia. In 37 cases examined, he found it present in every case but one. Gerhardt claims its presence also in cases of lues of the brain, and in tabes dorsalis. The number of fluids examined by the writer from such cases is too few to warrant any conclusions. Endothelial cells have occasionally been found in cases of tumor of the brain.

Cryoscopy has been found of no value.

The bacteriological findings are of paramount importance, giving us, when positive, an absolute diagnosis of the etiology of the disease. When negative we can draw no conclusions. Thus Stadelmann says: "Positive conclusions can only be drawn from positive, but never from negative results." The number of different organisms described as having caused meningitis is legion. Thus the *Staphylococcus albus* and *Staphylococcus aureus*, the streptococcus, the pneumococcus, the meningococcus, the typhoid bacillus, the *Bacterium coli*, the influenza bacillus, the bacillus of Friedländer, the bacilli of glanders and plague, the tubercle bacillus and even the *Micrococcus tetragenus* and *Actinomyces bovis*, have been credited as being the etiological factor of the disease. To this list can also be added the cases mentioned by Libman and Celler, in which the pseudo-influenza bacillus, the *Bacillus pyocyaneus*, and the *Bacillus proteus vulgaris* were isolated during life.

In the series of cases here reported the *Diplococcus intracellularis meningitidis* as first described by Weichselbaum in 1887, was the organism most often found, appearing in 64 per cent. of the cases due to inflammation of the meninges. For a description of its cultural characteristics I would refer to the paper of Libman and Celler.

The tubercle bacillus was the second in frequency. In the 40 cases examined, tubercle bacilli was found in 38 (see Table II) making a percentage of 95. This remarkable high percentage of positive results, we believe is due purely to careful technic and to patience in looking for the bacilli. In more than one case it was necessary to search for several hours before the tubercle bacillus was found.

Technic and patience have much to do with the diverse results reported by different authors. Thus Monti, who examined 35 cerebrospinal fluids withdrawn from 15 typical cases of tuberculous meningitis, failed to find the tubercle bacillus in any case, and therefore concludes that lumbar puncture furnishes no help in the diagnosis of tuberculous meningitis.

Other authors have also reported negative results, but the number of fluids examined was usually small. Thus Felsenthal, who examined one case of tuberculous meningitis, and Senator, who examined two, failed to find the tubercle bacillus. Ewald never succeeded in establishing the diagnosis in any of his cases, and Heubner also had negative results in the six or seven fluids examined. Kopp reports one positive finding in the three cases examined, while Stadelmann, who examined 14 fluids, found tubercle bacilli three times.

As the number of fluids examined becomes greater, we notice a corresponding increase in the percentage of positive results, which means that with more experience comes better technic. Thus Fürbringer found the tubercle bacillus in 27 of the 37 cases examined (73 per cent.), and Bernheim and Moser reach the same percentage by having 44 positive results in 60 cases (73 per cent.) Slawyk and Manicatide found tubercle bacilli 16 times in 19 fluids (84 per cent.), while Langer, who examined 22 fluids, had 18 positive results (85 per cent.) Pfaundler succeeded in demonstrating the tubercle bacillus in spreads, in 9 out of his 10 cases (90 per cent.)

Several methods have been advocated to make the search easier and more successful. Lenhartz employed a small piece of absorbent cotton, which he allowed to sink slowly to the bottom of the fluid, hoping thereby to entangle any tubercle bacilli present. He would then lift it out with a platinum loop, tap it over a cover-glass, and stain for the bacilli. Slawyk and Manicatide used the fibrin net if present, and spread this on a cover-glass for use. If no fibrin net formed they centrifuged the fluid and employed the last few drops.

The author's technic in handling cerebrospinal

Table III.—Meningococcus Cases.

No.	Albumin	Microscopic	Cytology: Mononuclear Leucocytes	Cytology: Polynuclear Leucocytes
1	4 mm.	negative	+	++++
2	6 mm.	meningococcus	+	++++
3	bloody	negative	blood	blood
	bloody	meningococcus	+	++++
4	.....	meningococcus	+	++++
5	4 mm.	meningococcus	+++	+
	4 mm.	negative	+++	++
6	8 mm.	meningococcus	+++	++
7	6 mm.	meningococcus	++	++
8	5 mm.	meningococcus	++	++++
9	5 mm.	meningococcus	+++	+
10	6 mm.	negative	+	++++
11	6 mm.	meningococcus	++	+++
12	5 mm.	meningococcus	+	++++
13	4 mm.	meningococcus	+	+++
14	5 mm.	meningococcus	+	++++
15	6 mm.	meningococcus	+	++++
16	bloody	meningococcus	blood	blood
17	bloody	meningococcus	blood	blood
18	3 mm.	meningococcus	+	++++
19	.....	meningococcus	+	++++
20	8 mm.	meningococcus	+	++++
21	7 mm.	meningococcus	+	++++
22	7 mm.	meningococcus	+	++++
23	6 mm.	meningococcus	+	++++
24	6 mm.	meningococcus	+	++++
25	6 mm.	meningococcus	++	+++
26	6 mm.	negative	+	++++
27	5 mm.	meningococcus	+	+++
28	4 mm.	meningococcus	+	++++
29	6 mm.	negative	+	++++
30	4 mm.	negative	+	++++
31	5 mm.	meningococcus	+	++++
32	6 mm.	meningococcus	+	++++
33	5 mm.	meningococcus	+	+++
34	6 mm.	meningococcus	+	++++
35	7 mm.	meningococcus	+	+++
36	5 mm.	meningococcus	+	++++
	4 mm.	negative	+	++
37	6 mm.	negative	30%	70%
38	6 mm.	meningococcus	10%	90%
39	3 mm.	meningococcus	27%	73%
40	3 mm.	negative	63%	37%
41	7 mm.	meningococcus	8%	92%
42	4 mm.	meningococcus	15%	85%
43	6 mm.	meningococcus	37%	63%
44	6 mm.	meningococcus	30%	70%
	6 mm.	meningococcus	28%	72%
	6 mm.	meningococcus	25%	75%
45	4 mm.	meningococcus	32%	68%
46	6 mm.	meningococcus	5%	95%
47	4 mm.	meningococcus	30%	70%
	4 mm.	negative	40%	60%
48	7 mm.	meningococcus	5%	95%
49	4 mm.	negative	40%	60%
50	6 mm.	meningococcus	15%	85%
51	5 mm.	meningococcus	18%	82%
52	6 mm.	meningococcus	2%	98%
53	4 mm.	meningococcus	10%	90%
54	6 mm.	meningococcus	25%	75%
	4 mm.	negative	Few	Few
55	6 mm.	meningococcus	10%	90%
56	6 mm.	meningococcus	5%	95%
57	5 mm.	meningococcus	5%	95%
58	4 mm.	negative	2%	98%
	4 mm.	meningococcus	35%	65%
59	4 mm.	meningococcus	15%	85%
60	6 mm.	meningococcus	12%	88%
61	4 mm.	meningococcus	20%	80%
62	5 mm.	meningococcus	5%	95%
63	6 mm.	meningococcus	5%	95%
64	6 mm.	meningococcus	10%	90%
65	4 mm.	meningococcus	25%	75%
66	5 mm.	meningococcus	25%	75%
67	6 mm.	meningococcus	2%	98%
68	5 mm.	meningococcus	25%	75%
69	4 mm.	meningococcus	10%	90%
70	6 mm.	meningococcus	5%	95%
71	5 mm.	meningococcus	17%	83%
72	7 mm.	meningococcus	12%	88%
73	6 mm.	meningococcus	2%	98%
74	7 mm.	meningococcus	blood	blood
75	6 mm.	meningococcus	10%	90%
76	7 mm.	meningococcus	2%	98%
77	6 mm.	meningococcus	8%	92%
78	4 mm.	meningococcus	5%	95%
79	3 mm.	meningococcus	4%	96%
80	3 mm.	meningococcus	8%	92%
81	4 mm.	meningococcus	5%	95%
82	4 mm.	meningococcus	3%	97%
82	4 mm.	meningococcus	1%	99%
84	4 mm.	meningococcus	1%	99%

Sugar negative in all cases except in 16 and 17, where fluid was bloody.

Microscopically there were meningococcus in the cultures in all the cases except Case 6.

fluids is as follows: As soon as the fluid is received at the laboratory, a culture is made of it on serum-agar and serum-bouillon, both with and without glucose. If a web of fibrin has formed, it is pricked out with a sterile platinum loop and spread on an absolutely clean cover-glass until dry. This smear of fibrin acts as a nidus for the sediment obtained by means of the centrifuge. The fluid is then poured into a sterile centrifuge tube and centrifugalized for ten minutes. All but the last few drops is then poured off, the centrifuge tube refilled and this process is continued until all the fluid has been thoroughly centrifugalized. The centrifuge tube now contains a few drops of fluid holding all the elements thrown down. A platinum loop is introduced and the sediment thoroughly stirred up, scraping the bottom of the tube so as to free any tubercle bacilli which may be adhering to the glass. Then a drop of this fluid is placed on a clean cover-glass for cytodiagnosis, and the remainder is poured over the film of fibrin previously prepared, and placed in the thermostat to dry. This concentration of material on one specimen is much to be preferred to the method advised by some authors, notably Pfaundler, who hunts through 10 to 20 spreads from each cerebrospinal fluid. In one or two hours the specimen has thoroughly dried, and after passing it three times through the flame, is stained by the Ziehl-Neelsen method.

The necessity of having absolutely clean cover-glasses for this work is exemplified by a case reported by Fürbringer, in which he found tubercle bacilli in the cerebrospinal fluid and at the post mortem an advanced typhoid fever was discovered. He thinks that possibly the cover-glass used had been previously employed for staining a tuberculous sputum.

The decanted fluid is then tested as to its reaction, specific gravity, presence of albumin, sugar, etc.

It would be manifestly unfair to quote the statistics of different authors on tuberculous fluids without, at the same time, noting at what stage of the disease the lumbar punctures had been made, for the nearer the agonal period the fluid is withdrawn, the higher the percentage of positive results should be. Most of the cases of Slawyk and Manicatide were punctured during the last three days of life, one case, however, showed tubercle bacilli on the seventh, and one on the ninth day before death. Langer's fluids, as a rule, were withdrawn somewhat earlier in the disease, ranging between the first and sixth day before exitus. The writer's cases were as follows:

14 cases showed tubercle bacilli 1 day before death.
10 cases showed tubercle bacilli 2 days before death.
1 case showed tubercle bacilli 3 days before death.
1 case showed tubercle bacilli 4 days before death.
2 cases showed tubercle bacilli 5 days before death.
2 cases showed tubercle bacilli 6 days before death.
2 cases showed tubercle bacilli 7 days before death.
3 cases showed tubercle bacilli 8 days before death.

1 case showed tubercle bacilli 9 days before death.
1 case showed tubercle bacilli 10 days before death.
1 case showed tubercle bacilli 12 days before death.

The possibility of growing the tubercle bacillus in cases where a microscopical examination has proved negative, has been strongly advocated by Langer, who states that in every one of his cases, he succeeded in cultivating the bacillus in the cerebrospinal fluid. By this means he diagnosed 100 per cent. of his cases. Unfortunately, we meet with the same objection here, as we do to the inoculation of the fluid into guinea-pigs—the patient is long dead before the diagnosis is obtainable. For even under the most favorable circumstances, the cultivation of the tubercle bacillus takes four weeks. It is true that this method is easier and cheaper than the use of guinea-pigs, but it is not as sure. Slawyk and Manicatide tried to cultivate the bacillus in all of their 19 positive fluids, and only succeeded in three cases. The writer's experiences along this line are too few to allow of any expression of opinion further than to say that he sees no advantage in cultivation over inoculation, since time is hardly saved thereby.

TABLE IV.—STREPTOCOCCUS CASES.

No.	Albumin	Microscopic	Culture	Cytology	
				Mononuclear Leucocytes	Polynuclear Leucocytes
1	4 mm.	streptococcus	streptococcus	+	++++
2	4 mm.	staphylococcus	staphylococcus	+	++++
	4 mm.	staphylococcus	streptococcus	+	++++
3	4 mm.	streptococcus	streptococcus	++	+
4	4 mm.	streptococcus	streptococcus	+	++++
	....	negative	negative	bloody	+
	4 mm.	negative	negative	+	++++
5	6 mm.	streptococcus	streptococcus	+	++++
6	4 mm.	streptococcus	streptococcus	+	bloody
7	6 mm.	streptococcus	streptococcus	10%	90%
8	3 mm.	streptococcus	streptococcus	11%	89%
9	4 mm.	streptococcus	streptococcus	17%	83%

Sugar negative.

That the subcutaneous or intraperitoneal inoculation of the cerebrospinal fluid into guinea-pigs is absolutely reliable, is accepted by most pathologists, but 5 c.c. or more should be injected, and four to six weeks allowed to elapse before the animal is killed. Marfan reported a case in which he injected less than 4 c.c. with negative result and yet the autopsy showed the presence of a tuberculous meningitis. Our results, even when the amount of fluid sent to the laboratory was so small that we had to content ourselves with the injection of only one or two cubic centimeters, were uniformly good.

TABLE V.—PNEUMOCOCCUS CASES.

No.	Albumin	Microscopic	Culture	Cytology	
				Mononuclear Leucocytes	Polynuclear Leucocytes
1	....	pneumococcus	pneumococcus	+	+++
2	4 mm.	pneumococcus	pneumococcus	+++	+
3	3 mm.	pneumococcus	pneumococcus	5%	95%

Sugar negative.

One possibility still remains of overcoming the objectionable time-limit in the use of the guinea-pig. It has been suggested that we employ the tuberculin reaction for an early diagnosis. After the animal is injected with the suspected cerebrospinal fluid, and subsequently with tuberculin, will the thermometer give us a clue? This question the writer hopes to investigate in the near future.

As a possible additional help in the diagnosis of tuberculous cerebrospinal meningitis, Donath tried microscopic agglutination tests, using an emulsion of tubercle bacilli, against which he tested the cerebrospinal fluid. He found the agglutinative power very low, none being positive even in dilutions of 1:10, while in a case of epidemic cerebrospinal meningitis, he obtained a partial reaction. His own conclusions are that this method is not reliable.

In connection with the question of agglutination it may be of interest to note the results obtained by the writer in two cases of typhoid fever, in which he tested the cerebrospinal fluid against the Eberth bacillus. Although the blood of both cases showed a positive Widal reaction in dilutions of 1:50, yet the cerebrospinal fluid gave absolutely no reaction even as low as 1:5.

Regarding the prognosis of tuberculous meningitis we must be rather conservative. Until a few years ago it was regarded as absolutely fatal, but in the recent literature we find four rather convincing reports of cases cured. Schaeche, who seems to have overlooked Freyhan's, as well as Henkel's cases, makes the statement as recently as 1901, that no single case of so-called healed tuberculous meningits, showed tubercle bacilli in the lumbar puncture fluid. He further says that even if a case looks like tuberculous meningitis, and goes on to recovery, we are forced to change our diagnosis to that of serous meningitis, as tuberculous meningitis is always fatal.

Freyhan, who reported the first case of recovery, cannot be questioned as to the correctness of his diagnosis. His patient had typical symptoms of tuberculous meningits, and tubercle bacilli were found in each of two different lumbar puncture fluids. The patient, after several months, made a perfect recovery. Henkel reported the second case on record in 1900. His patient was a boy ten years old, in whose cerebrospinal fluid tubercle bacilli were found, and yet the case recovered. Barth, in 1902, reported the recovery of a child 2¾ years of age, in whose lumbar puncture fluid tubercle bacilli had been found. Lastly, Gross, in the same year, reported a case in which three lumbar punctures had been made, the first showing tubercle bacilli and the other two being negative, and yet the case went on to recovery. These four are the only apparently authentic non-fatal cases of tuberculous meningitis in the literature. All of the 40 cases referred to in this paper terminated fatally.

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THE BACTERIAL AND CELLULAR EXAMINATION OF THE SPINAL FLUID IN FIFTY CASES OF CEREBROSPINAL MENINGITIS.*

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DURING the last eighteen months spinal fluid from 150 cases has been received by us for examination of either the cellular elements or bacteria, or both, contained in these fluids, and from these 150 cases the 50 cases of acute meningitis were taken for presentation.

Remarks concerning the clinical study of the cases are purposely omitted.

Somewhat similar clinical symptoms of meningeal irritation in infectious diseases may be due to the two fundamentally different pathological conditions to be differentiated during life by careful study only of the spinal fluid, viz., meningismus, an irritation probably due to bacterial toxins elaborated in some organ or tissue of the body other than the meninges, as in typhoid and pneumonia, both of which, however, may produce during their course a true meningeal infection, and meningitis with the infectious agent localized in the meninges.

The fluids from meningitis cases fall into two types, the serous fluid from a serous meningitis, of which tuberculous meningitis is the type, and the purulent fluid from a purulent meningitis, caused perhaps by the meningococcus, streptococcus, pneumococcus or other organism. In the study of fluids from cases of acute meningitis we have to look for and deal with serous and purulent types. The serous type may be overlooked readily if slight changes in color are not noted, and if careful examination of centrifugated specimens and cultures for bacteria are not carried out. The purulent type is readily recognized from the turbidity of the spinal fluid.

The normal spinal fluid obtained by lumbar puncture is absolutely clear and colorless, unless clouded and colored by hemorrhage from traumatism during puncture; free from coagulum and sediment; contains a few to a dozen small mononuclear cells after thorough centrifugation and searching through several preparations from the apparently clear fluid at the bottom of one centrifuge tube, and is free from bacteria, excepting contamination. The presence of *Micrococcus albus* in cultures we have always considered due to skin contamination and have not considered it in our results.

The amount of fluid withdrawn varied from 5 to 60 c.c. The fluids were examined as soon after puncture as possible, usually within six hours, yet when collected in sterile tubes with cotton plugs some specimens twenty-four hours old and three forty-eight hours old were fit for a satisfactory examination. It is well to allow the clear fluids to stand for five or six hours after puncture in order to allow time for the separation of coagulum, which will occur in some specimens, particularly if tuberculous. For the study of cells and cultures of bacteria the freshly drawn fluids are preferable.

The fluids were examined as to (1) macroscopic characteristics—clearness, coagulum, color or absence of color, sediment; (2) as to cellular content, relative number of cells, types of cells, relative proportions of different types of cells (cytodiagnosis); (3) and as to bacterial content.

After thorough study of literature and of several fluids, these three phases of examination were selected as of most importance from diagnostic and practical points of view, the clinical study being neglected, with exception of qualitative tests for cholin, the results of which will be reported later with the remainder of the 150 fluids examined for cholin.

Macroscopic Examination.—For a satisfactory macroscopic, cellular and bacteriological examination it is necessary to collect the fluid in at least two (or three) sterile tubes, preferably centrifuge tubes, so that preparations from the sediment for bacterial cultures and subsequent study of cells may be made readily without exposure to contamination from unnecessary manipulation; and the collecting of the fluid in two or three tubes satisfies one at once in regard to slight accidental hemorrhage from traumatism from the lumbar puncture. If the bleeding is pathologic, the second and third tubes will show a blood-color and cloudiness similar to the first tube. With extensive bleeding, which may occur from accident (*e.g.*, from a fall) to a meningitis

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case, the characteristics of the pathological fluid may be obscured and the meningeal condition diagnosed only after the determination of the ratio of red and white cells and the differential count of the white cells and the finding of bacteria, as shown by one case reported under cases due to the meningococcus.

In addition to the 50 cases of cerebrospinal meningitis, five cases of tuberculous meningitis are included in the report.

With no exception, the 50 acute non-tuberculous infections produced a turbid fluid, the turbidity ranging from a faint opalescence, due to bacteria in one fluid, to a fine or coarse, flaky suspension of fibrin flakes and leucocytes in the majority of the fluids. The five tuberculous fluids were clear, without the faintest opalescence or cloudiness, save a delicate veil-like coagulum (Mya's "cobweb coagulum"), extending from the surface to the bottom of the fluid.

This "veil-coagulum" is of importance in these tuberculous fluids, for during centrifugation it carries down some of the organisms and cells in suspension, and after centrifugation this coagulum is the part of the sediment in which one should search for the tubercle bacillus. If no coagulum is found in suspected tuberculous fluids, the albumin bodies, which are increased in this condition, may be thrown out by heating carefully, after acidulating with one or two drops of 10 per cent. acetic acid, so that during centrifugation the precipitated albumin will carry down the bacteria. Such a method, however, does not suffice for a study of cellular elements. These two simple methods do away with the necessity for employing Jousset's or any other similar method of inoscopy with their artificial precipitation and subsequent digestion of the precipitated material.

The color of the fluids was noted after centrifugating and decanting off the supernatant clear fluid into a test-tube, or a Nessler tube, in order that the observation for color might be made through a long column of fluid, for in this manner only is it possible at times to note the acquisition of color, pale yellow to a deep straw-yellow, which occurs in the tuberculous cases.

Of the spinal fluids from the 50 non-tuberculous cases all contained a suspension of leucocytes and bacteria and fibrin flakes immediately after withdrawal, and a sediment upon standing or after centrifugation. The tuberculous cases rarely show a sediment other than the veil-coagulum, which is thrown down on centrifugation.

Cytodiagnosis.—The cellular content was examined after the method described in the *Medical Record* for January 23, 1904. The total number of red and white cells, and the relative numbers of each were estimated by means of an Ehrlich's eye-piece, the average of 100 fields being taken as a unit for comparison. For differential counting of the white cells two methods have been used: A wet method, in which a drop of the sediment is mixed with a drop of Löffler's methylene blue on a slide, covered with a cover-glass and examined with a magnification of 500 diameters; and the dry method, in which a drop of sediment on a slide is dried at 36° C. for half an hour, and then stained with Wright's blood stain or a modified Nocht stain, or any other blood stain in solution in methylic alcohol, such as Jenner's, thus avoiding previous, separate fixation of the specimen. There is no apparent advantage in searching for eosinophile and basophile cells, so that, as a rule, we have used the wet method, and for these infectious cases have classified the cells as polynuclears and small mononuclears (lymphocytes).

Bacteriological Examination.—For bacteriological examination, cultures upon glycerin-agar, plain agar, occasionally upon ascitic fluid agar, and in broth, have been prepared from the sediment immediately after centrifugating and decanting off the supernatant fluid, and smears have been prepared and stained by Gram's method and for tubercle bacilli. In the following records under "smears," "meningococci" implies that the organisms were intracellular, and "pneumococci" that capsules were demonstrated. Where cultures were later positive, the records of smears are unimportant.

Of the 55 cases, 42 were due to the meningococcus (*Diplococcus intracellularis meningitidis* of Weichselbaum), and two of these gave on culture the pneumococcus as well as the meningococcus; five were due to the pneumococcus, five to the tubercle bacillus and three to organisms not satisfactorily identified.

The first clinical diagnosis in all these cases was epidemic cerebrospinal meningitis.

Forty-two Cases Due to Meningococcus.—The amount of fluid withdrawn varied from 1 to 20c. c. So far as one may judge from the clinical history the fluid was first examined three to ten days after onset, and in only two cases was it impossible to make a correct bacteriological diagnosis from the fluid at this period of the disease. In one exception the meningococcus was found in the fluid from a second lumbar puncture during the second week, and a diagnosis of meningitis was justified from the cellular content of the fluid obtained during the first week, although at this time the bacteriological diagnosis was obscured by contamination of the fluid. The second exception was a case in which diagnosis was obscured by hemorrhage from accident. The fluids from these forty-two cases were turbid, varying from a fine flocculent translucent cloudiness to a purulent opaqueness. In none of them did a coagulum separate out. The turbidity was due to fibrin flakes, leucocytes and bacteria, and upon standing, a definite thick sediment fell. The supernatant fluid, after centrifugation, was clear and colorless in six specimens, clear and of faint to deep yellow color in six, and definitely blood-tinged in eight, and in 22 cloudy. The cells in 100 fields (the unit mentioned above)

varied as follows: Red cells, from 20 to 1,440 in 100 fields; white cells, from 20 to 84,000 in 100 fields. In the purulent fluids there is no necessity for estimating the cells.

In all the specimens containing more than a microscopic trace of blood, the second and third tubes, whenever a third tube was taken, contained comparatively few red cells when compared to tube 1, and in all of them the ratio of white to red cells was far greater than in normal blood.

Differential counts of white cells always gave a relatively high percentage of polynuclear cells, varying from 68 to 100 per cent. In two out of four cases which recovered, with repeated punctures, the mononuclear cells increased in percentage as the disease approached convalescence, and late in convalescence the percentage of mononuclear was greater than the percentage of polynuclear cells, and in the other two cases this relative mononuclear increase did not occur.

In three fatal cases, with reported puncture, this gradual relative increase in mononuclear cells did not occur. The abundance of exudation as evidenced by this total number of cells and the variation in relative percentages of polynuclear and mononuclear cells bore no relation to the severity of the infection as manifested by clinical symptoms, to the prognosis, or fatality.

In six cases the meningococcus was found in smears only, and in the remaining 36 cases in smears and by culture.

In one case the diagnosis was obscured by extensive hemorrhage. The three collecting tubes contained fresh blood and later a clot, yet the white cells far outnumbered the red cells (whites, 81,200; reds, 1,440; a ratio of one red to 56 whites), and the polynuclear cells predominated (80 per cent.); bacteria were not found. The diagnosis of hemorrhage and meningitis suggested by the cell count was verified at autopsy. Two of these meningococcus cases were infected with the pneumococcus also, and the fluids were similar to those from the pure meningococcus cases. One of these two mixed cases recovered.

Five Cases Due to the Pneumococcus.—The amount of fluid withdrawn varied from 5 to 30 c.c. These fluids were cloudy, tinged yellow in the supernatant portion after centrifugation, and gave an abundant purulent sediment. The white cells varied from 300 to 8,000 in 100 fluids, and the polynuclears predominated, from 94 to 99 per cent. Pneumococci were found in smears and by culture. These fluids differed from those from the meningococcus cases in their bacteriological content only. The five were fatal.

Five Cases Due to the Tubercle Bacillus.—The amount of fluid withdrawn varied from 10 to 60 c.c. In all five cases the fluids were clear, and after standing six or eight hours the delicate coagulum separated out. The color varied from a straw-yellow to a deep yellow. After centrifugation, the supernatant fluid was absolutely clear, but still colored, and the coagulum formed a small amount of sediment. A drop of fluid from the bottom of the centrifuge tube contained a few white cells, varying from 10 to 166 in 100 fields, and differential counts gave a predominance of small mononuclears, varying from 68 to 100 per cent. In three cases tubercle bacilli were readily found in the coagulum after centrifugation; in the fourth case, with only 10 white cells in 100 fields and 100 per cent. lymphocytes, the diagnosis was borne out post mortem; and in the fifth case, with 166 white cells in 100 fields and 89 per cent. lymphocytes, the diagnosis is uncertain, as post-mortem examination was not permitted.

Three Cases, No Bacteriological Diagnosis.—In three cases a diagnosis of purulent meningitis was justified from the macroscopic appearances and the cellular content of the fluids. One case, with four lumbar punctures over a period of six weeks, showed a gradual decrease of white cells from 275 to 6 in 100 fields, and a gradual increase in the percentage of mononuclear cells, from 41 to 94 per cent. a few days preceding death. Tubercle bacilli were not found during life, and post-mortem examination was not permitted. In the second case, during life and post-mortem, a bacillus was found, but not identified; and in the third case no bacteria were found and post-mortem examination was unfortunately not permitted.

These three cases we have classed as meningitis of undetermined origin. Some of the specimens of spinal fluid from these cases were received for examination seventy-two hours after withdrawal, and a satisfactory examination was next to impossible with such material, since within this time disintegration of the cells had occurred and bacterial contamination had taken place. The two cases without autopsies may have been due to the meningococcus, but from the cellular content of the spinal fluid obtained during life the first case was more likely a tuberculous than a meningococcus infection.

These examinations emphasize the importance of examination of the spinal fluid in order to differentiate meningismus from true meningitis, and serous from purulent meningitis; the importance of a careful method of examination for cells and bacilli in the tuberculous cases; the value of cytodiagnosis in the study of spinal fluids; the similar changes produced in the spinal fluid by the meningococcus and the pneumococcus infections; the readiness with which the diagnosis of epidemic cerebrospinal meningitis may be made with good technic from freshly-drawn spinal fluid.

The one case infected with both meningococcus and pneumococcus, which resulted in recovery, recalls the fact that the pneumococcus meningeal infection is not necessarily fatal, although a fatal termination is more frequent than in the infection due to the meningococcus.

REPORT ON GALL-BLADDER SURGERY, WITH ESPECIAL REFERENCE TO EARLY DIAGNOSIS AND EARLY OPERATIVE INTERFERENCE IN CHOLECYSTECTOMIES, WITH BRIEF SUMMARY OF TWENTY-EIGHT CASES, INCLUDING SIX CHOLECYSTECTOMIES.[1]

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SINCE surgery of the biliary tract has become such a prominent field, in which so many advances in recent years have been made, I thought I should be justified in offering a few remarks on the subject, and presenting a few cases of interest that have come under my care recently, as well as bringing up a few questions for discussion as to early operative interference, which seems to be one of the leading questions of the day. Gall-stones are of such frequent occurrence that Dr. Hans Kehr, of Halberstadt, states in his most excellent work on gall-stone disease (and I might say here in passing that I know of no better authority on this subject, as he publishes in this book over 547 gall-stone operations, and since the publication of this book he has added many hundreds more to his list, so that he has done, as he says, no doubt, more laparotomies for gall-stones than any living surgeon), "that almost every tenth adult body exhibits them, and quotes the pointed remarks of a surgeon, 'that every theater, every church and every concert-hall would resound with lamentation if stones occasioned discomfort in all cases;' he says that only about five per cent. of gall-stone subjects feel anything of the presence of the unbidden guests, and 95 per cent. remain entirely free, at least from severe suffering. They may have, perhaps, somewhat of dragging in the right side, feel a slight oppression in the stomach and suffer eructations and occasional anorexia, but on the whole there is no question of actual disease."

Even with this small percentage of cases that take on actual disease, it seems to me that any case of cholelithiasis is of such importance as to demand surgical aid, whether they have symptoms or not, for in these early recognized cases we can do simple, uncomplicated operations and achieve brilliant results. I voice here the sentiments of Mr. E. S. Bishop, who has recently said in the London *Lancet:* "It would seem as though the only safe advice which can be given is that gall-stones, wherever they are, should be removed as soon as the diagnosis could be made with certainty," and, further, in support of his statement he says: "No temporizing would be justifiable in the presence of urinary calculus, even though it were not producing active symptoms." Furthermore, the words of Dr. Kehr himself, namely, "That the slight danger of early operations stands in no sort of a relation with the great dangers of the disease itself," are sufficient to urge one on to early interference; at any rate, such patients should be watched with great care, because all of us are seeing more often cases of gall-bladder disease starting as simple cases of cholelithiasis and going on to some of the worst complicated forms of pericholecystitis, with possible peritonitis, and requiring immediate and prompt operative interference, with very slim prospects of success. Although the diagnosis in many cases remains, in a measure, obscure—that is, as to the exact character of the trouble going on in the gall-bladder. Still, by giving all the care possible toward obtaining a thorough and complete history, and with careful inspection and examination, we can often be pretty confident as to the character and location of the stone, also as to the degree of inflammation present. For instance, we may say, (*a*) this case is an example of gall-stones in an undistended gall-bladder, with patent cystic duct; (*b*) this is a case of chronic obstruction of the common duct by stones, gall-bladder being contracted; (*c*) this diagnosis shows an acute, purulent cholecystitis and local peritonitis; (*d*) dropsy of the gall-bladder, or hydrops, which is due to a closure of the cystic duct, either by inflammatory process or an impaction in it of a large stone. (A case I have had as an interesting example is one where the cystic duct was completely blocked off by a large stone, and I removed the gall-bladder intact, with the stone still in this impacted condition in the cystic duct. In this case I did a complete cholecystectomy, with an excellent result, having closed the abdomen without drainage; (*e*) an acute obstruction of the common duct;) (*f*) a chronic obstruction of the common duct, not having to do with stone impaction, but being tumor, possibly malignant, or having to do with the head of the pancreas; (*g*) another variety still of adhesive peritonitis of the gall-bladder, probably without the formation of stones; (*h*) an example of old inflammatory processes in the gall-bladder.

The above is a varied list of the conditions that we have to do with and in many of them we can say, oftentimes pretty accurately, if we give special attention to the histories in the case, what character of case it is before operation. But it behooves us not to be disappointed if an error in diagnosis is made and the findings at operation are not just what we expected would be present. We must bear in mind that the upper abdomen, so called, has closely associated so many important structures that Dr. William J. Mayo, in an article on "The Association of Surgical Lesions in the Upper Abdomen," says, very justly, "The palm of a hand may cover a serious lesion of any one of these organs, and that, too, at the point of greatest liability; not only so, but any one of this group may start a pathological process which may extend to any one of the others, and with fully as great frequency as occurs under similar conditions in either generative or urinary systems." All these are not fanciful pictures, the author states, but drawn from every-

[1] Read before the University of Maryland Medical Society in January, 1905.

day work. ". . . I have no hesitation in saying, that with an operative experience of over fourteen hundred cases of this description mistakes in exact diagnosis are still common, and in many instances unavoidable. The history may be the only diagnostic resource when the patient comes to us, and we all know how unreliable that may be." Continuing, he says: "If we clearly understand the possibilities of error, we are better prepared to meet complications, or execute a change of front, and operate on one organ when another procedure was planned. In the majority of cases a pathological diagnosis is possible, and one can say with certainty, this is gall-stone disease or this is ulcer of the stomach, but in a considerable minority a surgical diagnosis is the best that can be made. That is, we can say: In this locality is a diseased process which requires operative treatment, the exact nature of which must be determined by incision. The patient does not come to us for the purpose of having a certain operation performed, but seeks relief from suffering and disability."

It is an undisputed fact that almost all the pathological changes incidental to gall-bladder disease are due to inflammatory processes, which play the leading rôle in all the symptoms of cholelithiasis, by which this many-sided disease makes itself known. Upon the degree of infection, upon the number and virulence of the micro-organisms of the *Bacterium coli*, streptococci and staphylococci depends the kind, intensity and duration of the inflammation, which appears as serous, seropurulent, simple purulent and gangrenous cholecystitis. The typhoid organism is one of importance in this connection, and a careful inquiry should be made in each case as to whether the patient has suffered from typhoid fever. These attacks are oftentimes mild, and are simply attacks of stone colic, but in all events, whether the colic is mild or severe, it seems rational to believe that the infection has taken place: first, directly from the intestine through the common duct into the gall-bladder itself; secondly, from bacteria circulating in the general blood stream and reaching the liver through the hepatic veins; and, thirdly, by the transportation of bacteria from the intestine through the portal circulation; a stone, or many, having been lying quiescent, inflammation starts up which produces the chain of symptoms that occur. As long as the cystic duct remains patent, so that the bile can flow in and out, then the cholecystitis may subside, leaving stones of various sizes in the gall-bladder quiescently reposing, but when the infection has once found a favorable soil, there it creates a *locus minoris resistantiæ*, which it always attacks by preference. In this wise the fact is explained that the cholecystitis appears as a recurrent disease, which in its relapses is much more obstinate than appendicitis.

Dr. Kehr very distinctly states: "By this we do not mean that the colic must be present in its former violence; on the contrary, it often lets up and in its stead appears an obstinate backache, or a nagging, boring, persisting oppression in the stomach. Scarcely another disease runs its course so variably as cholelithiasis and changes its character so suddenly as it. Yesterday the most violent colic raged like a thunderstorm; to-day there has come a calm, which leads the patient quickly to forget the horrible condition of the preceding day. Scarcely has the vomiting disappeared, when the appetite quickly returns, the sunken blanched features become rosy and renew their youth, and no one dreams that the disease is making further progress. And yet, in spite of this external improvement the bile in the gall-bladder turns into pus, the patient has no suspicion what an explosive he conceals in his abdomen. In fact, very frequently the disease, with perverse hypocrisy, conceals under a beautiful mask its horrible features, and unless we surgeons now and then upon a time had the courage, with skilful hand, to tear off the mask, we never would have obtained a conception of the knaveries and wiles of cholelithiasis. It passes still, especially among the laity, as a harmless disease, which is not worth the cost of an operation. How often has this optimistic view of the nature of cholelithiasis caused severe and irreparable injuries, and how frequently a flourishing life has been blighted which might have been saved by an early operation!"

The inflammatory process, which takes place in the gall-bladder, must be regarded in a measure as the expelling force which sets the stone in motion, and forces it, if not too large, to pass the cystic duct, on into the common duct. The stone, if of large size, may give rise to an acute obstruction of the common duct, which occasionally ruptures through into the free peritoneal cavity, or after the formation of a choledochoduodenal fistula into the intestine. (Case V. of my series of cases illustrates this condition, where a large single stone was acutely and tightly impacted in the common duct, and the duct was nearly gangrenous at this point from pressure. In this case there was also an acute cholecystitis and a very tightly distended gall-bladder.) After reaching the common duct, the pathological changes which the stones occasion here are about the same as those which are produced by concretions in the gall-bladder. If the stones are of small size, they are frequently forced on and on by degrees through the ductus choledochus into the intestine, by successive attacks of colic. When they once reach the common duct, however, they are more than likely to lodge there, because the middle portion is more easily dilated than its distal extremity. Once here there is always an interference with biliary drainage, and infected bile and infected secretions from the gall-bladder pass back into the hepatic ducts, and oftentimes set up more or less acute cholangitis, and a later crop or set of stones form in the hepatic or common ducts.

above, or in the gall-bladder, and add to the chain, and thus we often find a chain or necklace of stones in the common duct. (Case VII of my series is an excellent illustration of this condition; in this case I found a perfect necklace of stones in the common duct, six in number, I think.)

The presence of these stones in the common duct keeps up a constant irritation, and the cholecystitis which is sure to accompany these cases causes contraction of the gall-bladder, which sooner or later causes marked thickening and infiltration in the gall-bladder wall, which, if carried to its fullest extent, leaves the gall-bladder a dense, hardened mass of cicatricial tissue, and generally one finds covered over by adhesions which have taken place between the gall-bladder on the one side, and the omentum, stomach and intestines on the other, and I assure you in this condition of affairs one frequently has much difficulty to find his way in this chaos of adhesions down to the gall-bladder and the deeper lying ducts. I saw recently, at the University of Maryland Hospital, with one of the attending gynecologists, just such an obliterated gall-bladder, not much longer than the size of one's little finger. In this case there was but one small stone in the common duct.

Again, stones lying in the common duct often imperceptibly grow and increase, until suddenly a greater swelling of the mucous membrane occurs, possibly from a fresh infection, and a severe attack discloses itself by the occurrence of colic, jaundice, or fever. If it cannot escape into the intestine, then the duct often increases in size to accommodate itself to the increased growth of the stone, or stones, but there is no retrograde wandering of a stone into the gall-bladder. In such attacks as I have just mentioned we often encounter well-marked jaundice —true lithogenous jaundice—occasioned by the obstruction of the choledochus by stone, as distinct from the inflammatory jaundice which we occasionally encounter in acute cholecystitis, and then only when the inflammatory process in the gall-bladder has extended to the mucous membrane of the cystic and common duct.

The general impression that jaundice always belongs to gall-stone disease is incorrect, and no longer is of value. It is absent from 80 to 90 per cent. in all operative cases and the clinician should never hesitate to make a diagnosis of disease of the biliary passages because of the absence of jaundice. That it often is associated with it is true, and attacks of it frequently occur when we have to do with stones in the common duct, which have been driven by inflammation into the continually narrowing portions of the duct, and when there is a large stone in the cystic duct which impairs the patency of the common duct, but seldom does it occur with attacks of cholecystitis and cholelithiasis, where the stones are confined to the gall-bladder.

The occurrence of jaundice, although not necessarily associated as frequently as one was wont to assume heretofore, is still of the greatest importance in obtaining the history to ascertain this important point, also as to whether it appeared immediately with the first cramp attack, as to how long it lasted and as to its intensity, etc. In chronic obstruction of the common duct by stone, it is of especial importance to determine the intensity of the jaundice, for by this means alone we are often in a position to differentiate stone impaction or obstruction from tumor or new growth formation of the common duct. For in chronic choledochus obstruction by stone the jaundice changes become less marked, and often clear up entirely, while in obstruction by tumor it is constantly becoming more intensified, and upon inspection alone this condition of pronounced continuous jaundice oftentimes will lead you to suspect tumor instead of stone. Then, again, in this condition of deep jaundice, upon palpation of your patient's abdomen over his gall-bladder region, a distended gall-bladder oftentimes is made out; this is another very strong proof that the obstruction is due to tumor, because one usually seeks in vain for a gall-bladder where there is a chronic obstruction of the common duct by a stone, since with common-duct stone we generally have a contracted gall-bladder, and a distended gall-bladder with cancer obstruction. This is according to Courvoisier's law and strongly emphasizes it. The law is practically as follows: "The presence of jaundice, with enlargement of the gall-bladder, suggests cancer. On the other hand, with a history of gall-stones and with the gall-bladder not palpable, it suggests stone in the common duct. In cancer there is very often little evidence of inflammatory reaction, which state is so commonly observed in cholelithiasis."

I have seen this law well brought out in most of my cases, and where one has to do with a deepening jaundice, progressive, which is painless, with emaciation and a palpable gall-bladder, one will almost invariably find cancer as the cause.

This I think an important point, since it is a well-known fact that gall-stones act as a stimulus to cancer formation. Courvoisier, of whom it is said that he was the real father of gall-stone surgery, says he found gall-stones present in 87.5 per cent.; Delano Ames in 95.4 per cent. of the cases of gall-bladder cancer (Kehr).

According to Schröder, 14 per cent. of gall-stone sufferers develop cancer. There are five cases bearing on this point in my list, and Case III of my gall-stone cases developed cancer and died eight months after. Some very large stones were removed from the gall-bladder.

The above statistics alone speak very strongly in favor of early operations for the removal of gall-stones; even though they are not apparently offending, still they may be quietly laying the foundation for cancer.

The condition of the stools, the color, character and consistency should be noted. The color of

the stools should always be noted; as long as they remain putty-colored, no stone will likely be found in the feces, but as soon as the brown color returns then careful examination of the feces may disclose a stone.

Careful observation should be made as to the appearance of fever; the intermittent form is especially characteristic in lithogenous choledochus obstruction. Careful stomach analysis should be made, to eliminate possible disease pertaining to this organ as a factor in a given case.

The urine and blood should always be carefully examined, especially the latter, for leucocytosis. It has been my experience to find an abscence of leucocytosis in ordinary cholelithiasis, unassociated with cholecystitis, but always a marked increase of leucocytosis after there is any beginning cholecystitis, or whether we have to do with a suppurative condition of the gall-bladder, or an empyema of the gall-bladder; there the leucocytosis, as a rule, is high.

It goes without saying that a general going over the patient is always necessary, and oftentimes throws important light as to whether it will prove an operable or inoperable case. The patient should be stripped and every organ in his body carefully gone over.

Palpation.—Of all the methods which we make use of in a special examination, apart from careful inspection and a thorough and complete general history, palpation is one of the most important. First, this should be directed in a gentle way to the quadrants of the abdomen not affected, and free from the seat of pain; then after getting in a way the confidence of the patient we should direct our palpation to the field of the disease, namely, to the right hypochondrium, and if there are any changes going on, pain and tenderness will be elicited on palpation. The patient should be in the recumbent position, and, better still, with a small pillow under the small of the back. We get a palpable mass most often when we have to do with an acute perforation of the gall-bladder with local peritonitis present. (This has occurred in five or six of my cases.) Or, again, when we have to do with an overdistended gall-bladder, caused by the common duct being obstructed by tumor (an example of this I have in hospital now, and in this case the gall-bladder could be easily palpated.) Exploratory puncture as a means of diagnosis, I mention simply to condemn.

As to the X-ray, this is in no way an aid, since up to the present I believe one has rarely succeeded with the Roentgen rays in demonstrating gall-stones.

The majority of gall-stone cases occur after the age of thirty years, and are found more often in females than in males, and less frequently in the colored than the white race.

Treatment.—As to this the medical and surgical advice is no longer at variance, and I don't believe that the majority of the profession still cherish the delusion that gall-stones can be dissolved, and regard at best operations for gall-stone disease as a last resort. This accusation was made in the following words: "Gall-stone surgery has not received in America the acceptation which it deserves, and, furthermore, I don't believe that the American surgeons accept the statement made in Germany that 95 per cent. of cases of cholelithiasis the patients have not suffered from symptoms. These are autopsy findings and the subjects in these cases, as a rule, can give no histories."

I think we are just waking up to the importance of early operative interference and can cite no better evidence of the medical views than by quoting Dr. Musser, of Philadelphia, who has been prominently identified with the medical side of this question. In his introductory remarks to a paper presented before the Congress of American Physicians and Surgeons, he says: "The era we are about to enter bodes for good. It looks as though we would go through the cycles of activity and inactivity, as in the earlier periods of appendicitis, in the treatment of gall-bladder infections."

This writer especially called attention to the secondary manifestations of cholelithiasis, and strongly urged the early surgical intervention to prevent these sequels and complications. He says: "Let us see to it that the primary ailments are cared for, blocking thereby the oncoming of secondary conditions. Fifty years from now the secondary phenomena will be as rare as those which are secondary to disease now removed early, as cataract, appendicitis, vesical calculus and a score of other conditions. Students of that day will marvel at the reports of cases of the present day." He then predicts that many cases diagnosed as tuberculosis, nephritis and cardiac disease will be prevented because they are merely manifestations of terminal infections, the primary source of which is in the biliary apparatus.

From this it would seem that the surgeons are fast getting the medical men into their way of thinking. Only a few years back it was considered that the so-called ideal operation upon the gall-bladder was to open the organ, remove the stones and immediately close it, as likewise the abdominal wound, without drainage. This method seemed when first proposed an effectual and permanent one, getting rid of the tedious process of drainage and obtaining a firm closure of the abdominal wound without fear of hernia. It was soon demonstrated, however, by experienced observers that this method failed to give the essential thing indicated—that is, in most, if not all, biliary affections, namely, free drainage of the biliary passages.

Furthermore, when it was found that immediate closure of the gall-bladder might be followed by grave disaster, ideal cholecystotomy was abandoned as an unsafe and possibly a dangerous procedure. This method I used in a few of my earlier cases. I remember distinctly one man upon whom I operated on March 27, 1901. He

was deeply jaundiced, and I removed 64 stones from his gall-bladder; found none in the common duct, much to my surprise, as I fully expected on account of his deep jaundice, and closed his gall-bladder, dropped it back and closed his abdominal wound. He made an excellent recovery; his jaundice cleared up at once, and he left the hospital in three weeks quite well. A letter received from his physician only a short while ago, says he has been perfectly well ever since.

The method of operation which provides free and thorough drainage of the gall-ducts and gall-bladder is conceded by the leading surgeons to be the method of choice.

One of the most important steps is to provide a large incision in the abdominal wall, preferably through the right rectus muscle, sufficient to enable one to get the subhepatic space well opened up and well tucked off in order to inspect thoroughly the gall-bladder and the common duct; then, whether the operation resolves itself into either one of cholecystotomy, or cholecystectomy, should be governed by the findings. I am not an ardent advocate for gall-bladder extirpation in all cases by any means; in many conditions it is unquestionably the operation of choice. In my list of twenty-eight cases I have performed six cholecystectomies, and the results in all of them have been most excellent. It is my opinion that when one has to do with a badly infected or possibly gangrenous gall-bladder, with necrosis of the adjacent liver structure and local peritonitis, an extirpation of the offending organ had better be done. In four of my cases of cholecystectomies they were done for this condition. In my other cases of cholecystitis, with gall-bladder stones and common-duct stones, I have removed the stones both from the gall-bladder and from the common duct and drained the gall-bladder freely with gauze drainage and rubber tubing. In a few of my earlier cases I sutured lightly the common-duct incision and drained freely the gall-bladder, and in all with excellent results, save in one, a case of a common-duct stone, which was followed by a fatal issue six weeks after operation; cause of death probably a cholangitis.

Three years ago the surgeons were discussing the question of indications for operating in gall-stone disease; the prevailing opinion was then that the stones should be removed as soon as they begin to offend.

The leading question now being discussed is: Should gall-stones be removed whenever they are known to exist, whether they offend or not, provided the patient's general and local conditions are favorable?

This question was brought out by Dr. Maurice H. Richardson, of Boston, in a paper on "The Surgery of the Biliary Tract," read at the Fifty-fifth Annual Session of the American Medical Association.

The two leading questions he asks in his paper are: (1) Should gall-stones be removed even if they cause no symptoms? (2) What is the importance of biliary drainage after opening the gall-bladder or gall-ducts?

In answer to his first question he is strongly of the opinion that gall-stones should be removed whether they cause symptoms or not, and his final argument in the favor of removing gall-stones when they cause no symptoms, are: First, the known safety of the procedure in the given case, and, secondly, the uncertainty of the future in the same case. It will be a matter of almost absolute demonstration in that case what the course of operation will be—an easy and successful operation. What the course without operation in that case will be no man can tell, except that it may be unfavorable. Gall-stones can never do good; they may remain at a standstill, and they may suddenly cause irreparable damage. Operation may do harm, but in the favorable case assumed, it is almost sure to be effective in removing permanently a source of great danger and unbearable suffering."

The second question he answers by stating that in his judgment drainage should be employed in most gall-stone operations and continued until the bile spontaneously ceases to flow through the wound. Immediate closure of the gall-bladder without drainage, is, in his opinion, in itself so hazardous that it is to be condemned. He is an ardent advocate for free biliary drainage, and says that well-drained cases almost invariably do well. In his opinion it is a most important step in the surgical treatment. He says that non-drained cases, in his opinion, present a considerable percentage of bad end-results. Furthermore, he thinks that among his patients he finds far better end-results from cholecystotomy than after cholecystectomy.

In an article by Dr. Richardson, published in the MEDICAL NEWS of May 2, 1903, on the "Indications for the Extirpation of the Gall-Bladder," he strongly takes the side in favor of cholecystotomy as against cholecystectomy, and gives the following advantages and disadvantages:

The advantages claimed for cholecystectomy are as follows: (1) The wound heals immediately and the liability to hernia is therefore slight: (2) there is no possibility of any further gall-stones forming in the gall-bladder; (3) there is no possibility of a subsequent cholecystitis: (4) there is no possibility of malignant growths starting in the gall-bladder; (5) the formation of adhesions is reduced to a minimum.

The disadvantages of cholecystectomy claimed by Dr. Richardson are: (1) There is no possibility of draining the biliary passages, except through one of the ducts, and that only after a difficult and unsatisfactory operation (this seems to be his principal argument against it): (2) there is greater danger in the operation; (3) re-drainage of the biliary passages is extremely difficult and dangerous.

His principal reasons expressed against cholecystectomy are that free biliary drainage cannot be provided for, and this, taken with the fact that this condition is almost always called for

and can be much better carried out when the gall-bladder is left intact, causes him to consider cholecystotomy preferable to cholecystectomy, the latter being at best a far more serious operation.

Before closing I wish to voice my disapproval of a method of dealing with gall-bladder cases which I have seen in some recent publications, principally spoken of in articles on the treatment of gall-stones found as a coincident in abdominal or pelvic operations, viz., while working upon trouble in the lower abdomen it has been sug- to pass the hand up to the gall-bladder region and do a hasty gall-bladder operation, through a very small opening. It appears to me that this is a method which does not show proper respect to this field of surgery. If the gall-bladder operations are to be done, they are to be undertaken with the full knowledge of the fact that one case in five of all gall-stone cases show a stone in the common duct. Judging from the leading surgeons' opinions as to how best to deal with gall-stone cases, this ideal operation, as cited, cannot in this manner be dealt with in a thoroughly satisfactory way. I fully agree that exploration of the abdominal organs while doing laparotomy for something else is a very right and proper thing to do.

There is one thing of special moment and of great interest, and should not be lost sight of, viz., hemorrhage following operations on the gall-bladder. It is not a primary hemorrhage, this does not generally give much concern, it is consecutive hemorrhage, which is due no doubt to blood changes dependent upon prolonged jaundice—some clinical change which inhibits the fibrin-forming element and thus prevents rapid coagulation. This should be kept in mind, especially in cases where there has been long-standing jaundice, associated with any ecchymotic spots in various parts of the body; in one case in my list the cause of death was directly attributable to this form of hemorrhage. It has been suggested that to overcome and avoid the occurrence of such hemorrhage, or, at any rate, to diminish the chances of the occurrence of such hemorrhage, the patient be put on dram doses of chloride of calcium for some days prior to operation. This practice is advocated by Mayo Robson, and it is supposed to increase the coagulability of the blood.

My list of cases, mentioned in the summary appended hereto, comprise twenty-eight cases: Nineteen cases of cholelithiasis, with cholecystitis in one form or another, the location of the stones being both in the common duct and gall-bladder; in five cases the stones were found in both common duct and gall-bladder, and in the rest of the cases they were confined to the gall-bladder.

There were four cases of malignant disease of the biliary tract; in two of which the patient died following operation, the others were left unimproved.

Of these 28 cases there have been six cholecystectomies, in all of which the patients made excellent recoveries; three were done for acute perforative cholecystitis, or empyema of the gall-bladder, where the gall-bladder was gangrenous; one for chronic cholecystitis, with a large stone in the gall-bladder; one for hydrops of the gall-bladder, with a large distended gall-bladder, due to a large stone impacted in the cystic duct (this is Case XII in my list, a case of cholecystectomy in which I removed the gall-bladder intact, not dislodging the impacted stone in the cystic duct; the patient's abdomen was closed without drainage, and he made a beautiful recovery. I have never opened the gall-bladder to remove the stone, as it has made such a pretty specimen of an immensely distended gall-bladder); and one case for biliary fistula, with stones in the gall-bladder and common duct. In this case the gall-bladder was markedly thickened and infiltrated and I deemed it best to remove it. The cases of cholecystectomy are Nos. 11, 12, 13, 17, 18 and 20.

Four of these cases turned out to be liver abscess; they were sent to me, however, for gall-bladder cases, and were put in this list. All of these were opened and freely drained and made good recoveries, and one case is a case of gumma of the liver and perihepatitis. An exploratory laparotomy was done and no opening of the biliary tract was found necessary. The patient healed under one dressing and is getting well under the use of iodide of potash.

SUMMARY OF CASES.

Case I. Cholelithiasis, with marked jaundice. Operation: Ideal cholecystotomy. Cured.—E. B. U., aged forty-four years. She was referred to me at University of Maryland Hospital. She had had attacks of pain in right hypochondriac region at intervals for past seven years; these had increased in severity, and finally occurred on an average of every month, followed by jaundice. Palpation over gall-bladder revealed tenderness; the patient was markedly jaundiced. The abdomen was opened; the gall-bladder found and opened and 44 stones removed; none found in common duct; gall-bladder was sutured and dropped back into the abdomen and abdomen closed without drainage. Patient discharged April 17, 1901. A letter received from her physician in January, 1905, states that there has been no attack of pain since, nor any jaundice; patient has been perfectly well since operation.

Case II. Acute Cholecystitis. Operation: Cholecystotomy. Cured.—A. E., aged thirty-five years. She was referred to me at University of Maryland Hospital for severe attacks of pain in upper abdomen, attended by vomiting, a slight tinge of jaundice and marked tenderness over gall-bladder region on palpation. On April 12, 1901, I opened abdomen, found gall-bladder distended; many adhesions over it;

opened and evidence of cholecystitis noted; no stone found; biliary drainage was introduced into bladder and kept up until it closed of itself. Patient discharged June 1, 1901. Patient seen in 1905 and had had no recurrence of trouble.

Case III. Cholelithiasis, no stone in common duct; five very large stones removed from gall-bladder. Operation: Cholecystotomy. Left hospital as cured. Patient died eight months after operation of cancer of the liver; no evidence of carcinoma seen at time of operation.—C. C., aged forty-nine years. No history of typhoid; history negative as to malignant diseases; patient had enjoyed good health up to the present illness; about January 1, 1901, had an attack of grippe and has been sick off and on up to the time I saw her, May, 1901. Her trouble had been pain in abdomen in region of gall-bladder, at times very severe; attacks of excruciating agony, calling for large doses of morphine; slight jaundice noted; she had lost flesh. Under ether abdomen was opened, gall-bladder opened and a quantity of ascitic fluid came out. Four or five very large calculi were taken from gall-bladder. There was no evidence of trouble in the liver of a malignant type that could be seen or palpated at that time. I palpated liver on entire external and under surface, but found no growth in it. Patient recovered from operation, and returned to her home. I saw her again six months' time and found her with marked ascites, and tapped her, drawing off an immense quantity of fluid, after which I could readily palpate the liver border and could easily make out a hard, nodular liver, which to my touch was unquestionably carcinoma, of which she died.

Case IV. Acute empyema of gall-bladder, with perforation and abscess. Large stones found in gall-bladder. Operation: Cholecystotomy. Cured.—S., aged sixty-four years. A large stout, German woman. I was called to see her for supposedly appendicitis, on May 29, 1901. She had marked pain over upper and right side of abdomen: distended mass felt at border of liver, which was tender on pressure, marked rigidity of right rectus and with high temperature and pulse; no jaundice. On following morning at University of Maryland Hospital I opened her abdomen over this mass and came down upon an abscess, which, when evacuated, showed an opening at the bottom which went into the gall-bladder, from which pus also came. Several very large stones were removed from gall-bladder and one found impacted in cystic duct; this was removed and gall-bladder drained. Biliary drainage was kept up for several months until it closed of its own accord. She made an uninterrupted recovery and left hospital four weeks from date of operation.

Case V. Acute impaction of a single large stone in common duct, with acute distention of gall-bladder; common duct at point of impaction about to perforate from pressure. Operation: Choledo-cholecystotomy. Cured.—R. H., aged thirty-two years. Past history of patient reveals no attacks, previously, of gall-stone colic; four years prior to operation patient's history is that she had peritonitis; sick in bed six weeks, no operation was performed. Further states that she had three attacks of renal colic last September; after which she passed a stone the size of a white bean from bladder. Present history: Taken ill on June 16, with acute abdominal pains situated in the region of the gall-bladder, which grew worse, accompanied with constant and persistent nausea; pain grew intense, localized itself in right side over gall-bladder region, ran up in shoulder on right side; attack was ushered in by a chill. No jaundice present; tenderness noted over gall-bladder. I saw patient on June 18, advised immediate operation; she was sent to University of Maryland Hospital and on the evening of June 19 I operated. On opening abdomen a tightly distended gall-bladder was noted; passing the finger down in the foramen of Winslow I found a large stone impacted in the common duct. The gall-bladder was opened and the stone in the common duct cut down and removed. The opening in the common duct was closed up by two catgut sutures; gall-bladder was drained with tube and gauze drainage. Patient made an uninterrupted recovery. The contents of the gall-bladder were seropurulent, but no organisms grew from cultures taken at time of operation.

Case VI. Cholelithiasis with empyema of gall-bladder. Three stones of very large size, one inch in diameter, removed. Operation: Cholecystotomy. Cured.—R. T., aged fifty years. For over a year patient has had symptoms of pain referable to her gall-bladder region; no definite attacks of hepatic colic; no jaundice; two weeks prior to operation she was taken ill with severe pains in right side, associated with vomiting, and this grew worse; she was brought to me by her physician for supposed appendicitis. Upon examination I found a definite mass in her gall-bladder region, exquisitely tender to touch, and evidence of systemic infection; temperature; pulse and leucocytosis; trouble over lower abdomen. I excluded appendicitis and made a diagnosis of empyema of the gall-bladder. Operation July 20, 1901. Under ether, opened down through the right rectus; when peritoneum was opened an enlarged and tense gall-bladder was found; this was surrounded with gauze, subhepatic space well tucked off and gall-bladder opened. There was evidence of gall-bladder infection and a number of large gall-stones were removed. Gall-bladder drained with gauze drainage and rubber tube; wound closed around drainage. Patient became quite ill immediately after operation and the incision was opened to some extent at the top for better drainage; she made an uninterrupted recovery. In May, 1902, she returned to hospital for relief of a ventral hernia which occurred in upper part of cicatrix; this was closed by a radical hernia operation, under

ether, with excellent result, and she has been perfectly well ever since.

Case VII. Choledo-cholelithiasis. Five stones in common duct; six to eight in gall-bladder. Operation: Cholecystotomy; choledochotomy. Cured.—B. S. T., aged forty-nine years. Present trouble dates back six years, beginning with violent attacks of pain in gall-bladder region, with vomiting and chills; during first year had a period of rest from trouble for five months; since then attacks have been more frequent and ten days has been the longest period of intermission for some time; with these attacks she always has jaundice; last six months pain has been very severe; relief obtained by use of morphine. Loss of weight considerable; patient weighed a year ago 179 pounds, at present 130. I was called to see her, being told that it was a case more than likely of cancer of the liver. I found a patient jaundiced and obtained the before-mentioned history. In between the attacks the jaundice would clear up almost entirely. She was operated upon November 15, 1901, at the University of Maryland Hospital. A necklace of stones in the common duct, five in number, and from six to eight in the gall-bladder were removed. The gall-bladder was drained and the opening in the common duct closed with a few catgut sutures; patient made an uninterrupted recovery; result cured. A letter, received from patient a few days ago, states that she has remained entirely well ever since operation, having had no further trouble whatever.

Case VIII. Cholelithiasis. A number of stones (13 or 14) removed. Operation: Cholecystotomy. Cured.—A. C., aged twenty-nine years. Latter part of October patient was taken with pain in substernal region, or slightly to the right, which lasted for two days; thought it was indigestion; about November 6 she had a second attack, about same as first, pain in same locality; after vomiting attacks would be somewhat relieved, but pain continued, such attacks coming on at shorter intervals. After attacks she would lose appetite and would become jaundiced; operation December 7, 1901; cholecystotomy; drainage; patient made an uninterrupted recovery and has remained well ever since.

Case IX. Single impacted stone of large size in common duct. Operation: Choledochotomy. Died six weeks after operation of cholangitis.—X., aged fifty-three years. Present history: Patient has had trouble with biliary apparatus for fourteen months and at intervals attacks of pain and some slight jaundice, which became worse, ushered in by chills; her temperature following high; had also had trouble for several years with kidneys; urine upon entrance at hospital very scant in amount; full of hyaline and granular casts, with quite a ring of albumin. Leucocyte count, 13,000. She had been persistently jaundiced for several weeks, much emaciated and had been having chills with high temperature. Date of operation, March 8, 1903. Ether; incision through right rectus; opened, gall-bladder was found tied up by immense number of adhesions and was very much shrunken and thickened, but empty of stones; nothing was found in cystic or hepatic ducts; single stone was found in common duct, which was removed and duct left open. Patient stood operation well. Almost immediately after operation there was a total suppression of urine; following this patient did well and was up on the eighth day. Six weeks from date of operation she developed temperature and the drainage ceased from the biliary tracts; she showed evidences of a cholangitis and died on April 23 of edema of the lungs.

Case X. Cholelithiasis and cholecystitis. Operation: Cholecystotomy. Cured.—D., aged fifty-four years. No history of jaundice; has had some attacks of pain in right hypochondriac region over gall-bladder; the last month pain has been persistent and definitely localized at this point, where there is tenderness on pressure. Operation March 9, 1903; abdomen opened through right rectus; as soon as the abdomen was opened adhesions between gall-bladder and colon were noted, with some thickening of omentum on right side, which was slightly enlarged; 11 stones were removed from gall-bladder, in size from a pea to a cherry; hepatic, cystic and common ducts were normal; gall-bladder well tucked off with gauze, opened and drained. Result, cured.

Case XI. Chronic Cholecystitis. Gall-bladder markedly contracted. Operation: Cholecystectomy No. 1. Cured.—M. N. (colored), aged thirty-four years. Present history: Patient has complained of attacks of pain, jaundice and attacks of vomiting for past year. Date of operation March 18, 1903. Under ether, abdomen opened by right rectus incision, gall-bladder was found thickened and injected and markedly contracted; adhesions to omentum over it; there was a very large gland in the hepatic omentum; there was a stone found situated adjacent to and intimately connected with the common duct; this was dissected away; no stone found in gall-bladder. Gland and gall-bladder removed, the latter on account of thickening and inflammation, a cholecystectomy was done; entire gall-bladder being extirpated down to common duct. Abdomen closed without drainage; patient made an uninterrupted recovery and was discharged from hospital April 18, 1903.

(To be Continued.)

Laryngological Society.—At the eleventh annual meeting of the American Laryngological, Rhinological and Otological Society, held in Boston, Mass., June 5, 6 and 7, 1905, the following officers were elected for the ensuing year: President, Dr. James E. Logan, of Kansas City, Mo.; Vice-Presidents, Dr. Thomas H. Halsted, of Syracuse, N. Y., Dr. William L. Ballenger, of Chicago, Ill., Dr. H. Bert Ellis, of Los Angeles, Cal., and Dr. Henry L. Myers, of Norfolk, Va.; Secretary, Dr. Wendell C. Phillips, of New York; Treasurer, Dr. Ewing W. Day, of Pittsburg, Pa.; Council, Dr. Frederic C. Cobb, of Boston, Mass., Dr. James F. McKernon, of New York, and Dr. H. W. Loeb, of St. Louis, Mo.

ADULTERATION AND SUBSTITUTION.

BY GEO. C. DIEKMAN, M.D., PH.G.,
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FROM time to time there have appeared in the columns of the lay press, in this and other cities, articles and statements reflecting seriously upon the honesty and integrity of the retail pharmacist. The pharmacist as a rule has made no attempt to refute or even correct such statements, knowing them to be untrue, and in nowise substantiated by facts or figures. Portions of the report of the committee on adulteration and substitution of the New York State Board of Pharmacy have been quoted in support of the allegations set forth in these articles, where if the report had been quoted in its entirety, another picture would have presented itself. Alleged interviews with prominent pharmacists, purporting to show that the average pharmacist is a persistent and wilful violator of the pharmacy law, in that he furnishes the public with preparations of inferior strength, solely with the object of pecuniary gain, were also published. The pharmaceutical press has time and time again pointed out the fallacy and untruth of such allegations, at least as far as the great majority of pharmacists is concerned.

These publications have repeatedly shown that the pharmacist, from motives of self-protection, if for no other reason, could not afford to deal in articles and preparations which do not comply with the requirements as set forth in the United States Pharmacopœia, or if not official, with the tests of purity as commonly applied to such articles. As the pharmaceutical press, however, does not reach the general public, and only in rare instances is perused by the physician, such corrections do not carry the weight they should.

It would, of course, be an insult to the intelligence of the physician were it assumed that he is in the least influenced in his attitude toward the pharmacist, by any statement appearing in the columns of the daily press.

The public, however, being incapable, at least in this instance, of exercising good sound judgment, would be influenced more or less by such articles, particularly when presented in the usual sensational manner. The writer, himself a physician, therefore believes that the medical fraternity can, and ought to, assist the pharmacist in his endeavors to correct the erroneous impression that many pharmacists are dispensers of impure drugs which, by virtue of such false statements, seem to have gained a foothold in some quarters.

The writer is also in a position, being a member of the New York State Board of Pharmacy, and chairman of its committee on adulteration and substitution, to prove, by statistics, that pharmacists, as a class, do not sell or dispense impure or adulterated drugs. In order to substantiate this statement it will be necessary to explain how the figures which I will present are obtained:

The State Board of Pharmacy is empowered under the Pharmacy Act, to collect samples of all articles named and described in the latest edition of the United States Pharmacopœia, to have such samples analyzed by its chemist, and in case of deviation from the standard established by said Pharmacopœia, to proceed against the seller, either civilly or criminally, or both. Accordingly the State Board of Pharmacy, in the person of its duly authorized inspectors, does collect such samples, has them analyzed, and in each case where the findings of its chemist show a deviation from the official standard, notifies the seller of the article that he has violated the provisions of the Pharmacy Act, and that he is liable to the penalty incurred in consequence thereof. During the year 1904, 2,121 samples were collected from pharmacists carrying on business in the territory over which the Eastern Branch of the State Board of Pharmacy has jurisdiction, such territory comprising the counties of New York, Kings, Queens, Nassau, Suffolk, Richmond and Westchester. Located in this territory there are nearly 2,300 pharmacies. Practically all of these were inspected during the year and samples obtained from over 800 of them. Among the samples collected were such as are commonly purchased by the public without a physician's prescription, viz., camphor liniment, soap liniment, spirit of camphor, etc., also such as are generally dispensed only on prescription, viz., tincture of opium, tincture of nux vomica, etc. These samples were collected in all parts of the above-named territory. In some cases they were obtained from stores where the Board knew, or had reason to believe that violations occurred. The percentage of violations are on this account, perhaps even greater than it would have been, had it been possible to collect samples from every store in this territory.

The result of all analyses shows that out of 2,121 samples, 1,853, or 87.37 per cent., were standard, or very nearly so. 117 samples, representing 5.51 per cent. of the total number collected, were found to contain methyl alcohol. Most of such preparations as contained methyl alcohol, were intended for external use. The kind of methyl alcohol employed was the refined variety sold under a certain trade name, and not the ordinary commercial article. The latter statements are not intended to make the violation appear of minor importance, on the contrary the Board of Pharmacy considered the use of methyl alcohol, in any preparation, a gross violation of the law, and in each of these 117 cases a penalty was imposed. Again it must be borne in mind that these 117 samples were not obtained from 117 different sources, but that 3 and sometimes 4 of such samples were purchased in the same store.

151 samples, representing 7.12 per cent. of the total number collected, were upon analysis

found to be deficient in strength, but containing no ingredients except such as constitute the pharmacopœial formula. Such violations are usually the result of a careless supervision during the process of manufacture of such preparations; they may be classed as errors of omission rather than errors of commission. A penalty is imposed for violations of this kind also, the pharmacist being responsible for the quality, strength and purity of every official article or preparation sold by him.

In some cases it was found that the pharmacist sold to the public preparations deficient in strength, while, if a physician's prescription was presented for the same preparations, they were dispensed of a quality strictly in accordance with the official standard. Tincture of Opium and Chloroform Liniment may be cited as examples.

Some of these 2,121 samples were obtained from stores not classified as pharmacies, namely grocery stores, the proprietors of which, under the Pharmacy Act, are permitted to sell certain articles classified as household remedies, cream of tartar, borax, bicarbonate of sodium, etc., serving as illustrations. These articles must, however, conform strictly to the requirements of the Pharmacopœia. Every adulterated sample of cream of tartar was purchased from a grocer, while every sample of drug store origin was found to be pure.

It is also alleged that pharmacists sell and dispense certain proprietary articles which do not conform to the standard of purity for such, and which are supposedly adulterated with inferior and cheaper substances.

As such preparations are not embodied in the present edition of the Pharmacopœia, the Board of Pharmacy is not empowered to take action. It may, however, be said that some time ago, a goodly number of samples of such articles were purchased from retail pharmacists, analyses made, and the results thus obtained made to support the claims of those interested in their sale. A close scrutiny of these results (analytical) does not justify the deductions made therefrom. It appears that in a fair number of instances the analysis showed that a trace of some foreign substance, often less than one per cent., was present. There can be no doubt in the mind of any one, not prejudiced, that if such admixture did exist, the pharmacist is not responsible for it. If a pharmacist desired to adulterate an article or preparation, he certainly would add more than a trace of the adulterant. That such adulteration does exist is not denied. That any considerable number of pharmacists are guilty of such practice is most emphatically denied, and any fair and impartial investigation will substantiate such denial.

The question: Why should there be any violation, on part of the pharmacist, of the Pharmacy Law? may properly be asked at this time. There can, of course, be no justification of such violations, and none will be attempted by either myself or by the law-abiding pharmacist who constitutes nearly 90 per cent. of the total number.

One can only say, that it is not surprising to find among the nearly 2,300 pharmacists who own or conduct pharmacies in this section of the State, a few who can be denominated wilful violators of the law. In most cases a notification, on part of the Board of Pharmacy, of an existing violation, meets with an immediate response, and a subsequent inspection shows that the evil has been corrected. I believe it can safely be said the violators among pharmacists are fewer in number than among those who distribute to the public the common necessities of life, such as dealers in meat, milk, groceries, bread, and many others. Many of these intentionally or ignorantly, serve the public with wares which prove detrimental to health when consumed.

It is only fair to say that the Board of Pharmacy has at all times received valuable assistance from pharmacists, either as individuals or through medium of the various pharmaceutical associations. They have cooperated with us in our efforts toward a strict enforcement of the Pharmacy Law, more especially that part of it which deals with the purity and strength of drugs and chemicals. Furthermore I will frankly say that I do not believe that pharmacists dispense spurious or adulterated proprietary articles, over the sale of which the Board of Pharmacy has no control, nearly as often as the distributors of such would lead the physician and public to believe.

In further support of my contention, that by far the greater number of pharmacists are perfectly willing to comply strictly with every provision of the Pharmacy Act, it may be stated that they recently had enacted a law, which requires that an apprentice possess a much higher degree of education than heretofore. In addition to this he is required to obtain a diploma from some College of Pharmacy, approved by the Educational Department of this State, before he is entitled to an examination by the State Board of Pharmacy, which examination, if passed, will entitle him to practice pharmacy in this State. Such apprentice must also be in possession of a stated number of regents counts before he can be enrolled as a student by any College of Pharmacy in this State. This certainly should be sufficient evidence that pharmacists are endeavoring to develop the professional side of their business rather than the commercial side. The ultimate object is to elevate the profession of pharmacy to the same level with the medical profession, as far as educational requirements are concerned. The imposition of such requirements has reduced the number of apprentices materially, and in many instances, has necessitated a greater outlay for hire of assistants. The pharmacist can certainly

not be charged with a desire of evading his just and proper responsibilities toward the physician and the public, for he is certainly striving with all his might to safeguard the interests placed in his charge. The great majority of pharmacists feel that they are in duty bound to furnish exactly that which the physician calls for, knowing full well that if otherwise, the physician's skill will not avail, and that his best efforts will meet with defeat. In view of the facts here presented it seems unjust and unfair to charge pharmacists, in general, with practices that are indulged in by the few.

COLDS, AND THE PREVENTION OF COLDS.

BY NEWTON JAMES, M.D.,
OF NEW YORK.

Cold is characterized by an inflammation of the mucous membrane lining the upper respiratory passages. That means the nose, the pharynx, the larynx, and the trachea. Usually these regions are not all involved alike at the same time. Sometimes the larger bronchial tubes are involved. When the deeper tubes are involved the disease becomes bronchitis.

A cold begins with a congestion of these mucous membranes. There are two common causes for this. They are (1) chilling the skin in a person whose skin is sensitive and tender to the influences of cold, causing a contraction of the blood-vessels of the skin, and driving an excess of blood to the deeper structures of the body; and (2) local irritation to the respiratory tract by the inhalation of polluted air, and air containing irritating substances such as dust, smoke, gases, etc.

The mucous membrane of the nose and pharynx has upon its surface, in the mucus which covers it and in its folds and depressions, a large number of many varieties of bacteria. When congestion of the mucous membrane develops, the amount of mucus is increased, and these organisms are supplied with more material to thrive upon. Also congestion diminishes the vital resistance of the mucous membrane, and the bacteria are able to find their way into its substance, penetrating among the epithelial cells. The bacteria produce their ptomains, which are absorbed into the circulation, and give rise to the fever and general ill-feeling. Locally the swelling of the mucous membrane, the increase of mucus and local heat, give rise to running at the nose, cough and expectoration.

If the conditions which cause the congestion cease to be operative, in a healthy person the mucous membrane will soon dispose of the excess of bacteria, and restore itself to its natural condition. If the primary causative factor continues to operate, or to be frequently repeated, the cold persists. Another feature in the case is this: If the trouble is due to the chilling of a sensitive skin, the other glandular organs suffer congestion as well as the respiratory organs; and the same cold is associated with more or less disturbance of these other organs. Disturbances of the liver and kidneys, which have much to do with the metabolism and elimination of effete products, result in the accumulation of poisons in the system. Among these are the uric acid group. These lower the vitality of the body, and delay the recovery of the mucous membrane. Thus all of these pernicious influences aid one another and contribute to the illness.

Every one who understands the pathology of this condition, knows of what insignificant importance the medical treatment of the immediate condition is when compared with the very great importance of the preventive treatment. The best of the rational treatment of the immediate condition is to keep the bowels open, and eliminate, as much as posible, the causative factor, *i.e.*, conditions responsible for the congestion of the affected organs.

When we come to the preventive treatment, we approach a subject which has to contend against ignorance and tradition.

The very name itself, cold, has been an obstacle to a correct understanding of this condition by the laity. Colds are most common in cold weather, not because the weather is cold, but chiefly because the most impure air is breathed at that season; and because the skin, which is kept tender with over-clothing, suffers when exposed to outdoor weather.

Colds are conditions of so-called advanced civilization. People who live close to nature are exempt. It is the dweller in the city who is surrounded with the luxuries, who suffers the most. The contrivances that he buys to keep away the cold are responsible for his colds. The woodsman, who works in the cold and sleeps in a freezing hut, enjoys the immunity.

In the prevention of colds there are two most important requisites, pure air and healthy skin and mucous membranes. Pure air is the air found out of doors in the country at every season of the year, day and night. The outdoor air of the city differs but little from that of the country. It contains more smoke, and its dust is richer in bacteria. These are the chief differences. As far as the atmosphere goes, a healthy person thrives about as well in the city as in the country. However, the sufferers from colds are not those who live in the outdoor air, but those who spend a large part of their winter time in an atmosphere which is very different from this. The air in offices, stores, theaters, factories and dwellings, in this climate in the winter time, is bad. Its temperature is usually higher than is consistent with good health; each occupant inhales the materials that have already come out of someone else's lungs, and the percentage of moisture in the air is far below normal. These conditions are due to the defects of the modern heating appliances. It is a long step backward as far as healthfulness goes, from the fireplace of our coldless ancestors to the steam-heated radiator of this catarrhal generation. Of all the iniqui-

tous machinery that has ever been contrived to destroy the weaklings and degenerate the strong, the steam-heated radiator stands pre-eminent. Here is a thing which can be put in a room, and the more tightly the room is sealed against the egress or inlet of air the more quickly will it heat the room and the more is it vaunted as a good thing. The fireplace, the stove, the furnace, all require circulation of air to do their work. The furnace, which has been discarded to give place to this thing, is eminently more rational. Every cubic foot of air from the furnace that enters a room displaces a foot that is there and pushes it out. It will not work unless there is ventilation.

Another defect of most modern heating apparatus is that it dries the air. Examination of the air of rooms in the winter time shows from five to thirty per cent. less moisture than is normally present. That means that indoors people are living in an atmosphere so much below the point of saturation that evaporation goes on from the body much more rapidly than is normal. The result of this evaporation of moisture from the body is a sensation of coolness. It is not uncommon to find in an office a temperature of 70° to 75° F., or even higher, and yet a sensation of chilliness when the moisture is low. In an old-fashioned kitchen, with boiling pots on the stove and the moisture percentage high, the same temperature would impart a decided warmth to the skin. Persons living in these dry-heated rooms are constantly contributing moisture to the air from their skin and respiratory mucous membrane. This keeps up a constant dilatation of the vessels of the moisture-secreting mechanism; and when such persons go into the normal outdoor air with its cool and natural dampness, cold results from the sudden contraction of the vessels which have been so long dilated. Thus we find in our fine modern system for preventing coldness, all of the conditions conducing to colds.

Next in importance is the condition of the skin, and this depends much upon the clothing. The person who is most susceptible to colds is the one who is most zealous in keeping warm. His skin is kept so warm that the superficial vessels are in a constant state of dilation, and woe betide him when he is struck by the cold air. Heavy woolen undergarments next to the skin often have the effect of keeping the skin moist and sensitive. A person whose skin circulation is good has little to fear from chilling blasts; the skin circulation restores itself immediately. Nothing will contribute to the vigor and resistance of the skin more than a daily cold bath, followed by a good rough rubbing. If a man unaccustomed to this luxury begins in the summer with a morning bath from the cold water tap, and continues it through the winter, he will feel well repaid for the few minutes it requires each day. If the temperature of the water is but little above the freezing point, a minute in the water suffices. The exercise of the rubbing with a rough towel sets the circulation going, and deepens the respirations. The people who do these things know the immunity from colds they enjoy. Many women prefer to use a sponge or shower or the wet flesh brush.

In line with this skin hygiene is the total discarding of wool next the skin. Of all the fabrics of which underclothing is made, wool is the most objectionable for the skin. Its tendency is to make the skin soft and tender, and in many instances to keep it slightly moist. No other material keeps the skin so warm; no other material makes it so sensitive to cold. Healthy skin covered in winter with woven, ribbed or meshed cotton, linen, or rami, is more comfortable, and infinitely less susceptible to cold. These materials should be woven in such a manner as to keep the other clothing far enough away from the skin to give room for a considerable layer of air between. This is accomplished by the meshed linen and rami and by the heavy ribbed cotton underclothing. Physicians in the departments of diseases of the lungs in the clinics of the city are accustomed to the pitiful sight of the chronic chest case and consumptive with his heavy red woolen undershirt and moist, sweaty skin. This greasy thing was a contributory cause of the deplorable state of the unfortunate patient, and now it has become an incubus that helps to drag him down. The inhabitants of northern Russia and the cold climates wear underclothing of coarse linen.

Here is the winter picture of the man who does not suffer with colds. He sleeps in a room with windows opening to the south. His windows are open all night, not an inch at the top and an inch at the bottom, but wide open. He does not fear the night air; he knows that is the only air there is to breathe at night. When the weather is very cold he may moderate this some, or allow some heat to enter the room. Instead of heavy woolen blankets he keeps warm with a down quilt, because it is lighter and more comfortable than the requisite number of blankets would be. He sleeps practically out of doors, but always with sufficient covering to keep his body warm. In the morning he closes the windows and opens the register or dresses in an adjoining room, after having taken his cold bath and rough rub. He has a ready appetite for breakfast. If he is fortunate, his occupation keeps him out of doors most of the time. If his occupation is indoors he walks part or all of the way to business, and breathes deeply; and he brings as much of the out-of-doors into his workroom as possible. On the crowded street car he will be found among the men on the platform, instead of among the huddled herd inside, breathing over and over again the exhalations of their neighbors' lungs. He does not soften his skin with woolen underclothes. He is temperate and healthy.

Colds are most prevalent in winter, not directly because of the cold, but because that is the season when people shut themselves in and

breathe bad air. Most persons who have enjoyed pure air all summer, habitually reverse their practice, and give themselves pure air in winter only when they are out of doors. As a matter of fact cold air is better to breathe than warm air, even though equally pure. It is more concentrated. A cubic foot of cold air contains a considerably greater percentage of oxygen than the same amount of warm air; in other words, every inhalation of cold air gives one more air than he gets with an inhalation of warm air. It is more stimulating to the nervous system. It is invigorating. It increases the oxidation of the blood, and stimulates respiration and digestion. The breathing of warmed air has the comparative opposite effects.

Ignorance and tradition start with the infant to make it susceptible to colds. The grandmothers have promulgated the doctrine that a baby is a delicate thing and must be protected, and they insist upon removing the very conditions into which God had it born. When a mother does the square thing by her child, and surrounds it with normal conditions, the old women say that she is hardening it. As a matter of fact the vast majority of children are subjected to a softening process. Swathing in flannels until the little bodies perspire, and excluding from pure air, does not constitute taking care of children; it constitutes making a care of them. After a baby has been born into the world and become accustomed to breathing its air, it is not the delicate thing that tradition charges it with being, if it is properly fed. The writer knows many instances of healthy children made invalids by overzeal in their care, and a pitiful sight it is to see a naturally robust child coddled into a pallid weakling.

As I write, my infant son, aged eight months, sleeps in his tent-house in the yard. It is December, the temperature is 20° F. Examination would show all of his body excepting his face, perfectly warm and his skin dry. He has on a linen mesh shirt, cotton stockings, and over these are woolen garments sufficient to keep him warm. At night his bedroom has two south windows open sufficient to give him good air. When put to bed for the night he wears a linen mesh shirt, a cotton flannel nightgown closed at the bottom. He sleeps in a woolen sleeping-bag shirred about his neck, with his arms coming out through the sides. Over all is spread the covering, depending upon the weather, a down quilt being used when it is cold. This is pinned so that it is fast at his shoulders, and to the bed, far enough away to give his arms liberty, and then turned under at both sides and at the foot. He has never been found to be cold; and he never perspired but once, and that was when a grandmother violated instructions and put an extra blanket over him for fear he would be cold. The contrast is a very striking one when this healthy boy is placed beside his little warm-air neighbors of the same age. The human kind and its infants are well adapted to breathe God's pure air. It cannot be improved.

The skin of infants can be kept in condition to repel cold. The child should have a daily bath, at a temperature considerably below that of its body. This should be followed by a good rubbing and massage of the limbs and body until the skin is warm. If for any reason the bath is best omitted, the general massage may still be given. The very important thing is that the child shall be so clothed that it shall never perspire.

Colds are an artificial condition brought on by artificial conditions. When explorers go into the Arctic regions, where they are exposed to great cold, they are particularly free from colds. This simply means that they are breathing air rich in oxygen and comparatively free from the contaminations of the air of civilized life. The poor man, whose work keeps him outdoors in winter and who sleeps in a cold room at night, does not suffer with colds. It is the rich man, the office worker in the steam-heated building, who has a nice warm comfortable bedroom, who suffers. It is a fact, however, that a large proportion of the outdoor workers sleep in illy ventilated rooms, and live unhygienically excepting during the eight hours of labor, while a large number of the indoor workers surround themselves with healthful conditions at all times excepting when at business. The candidate for colds and consumption is the unfortunate who both works and sleeps deprived of fresh air.

The modern treatment of consumption has resolved itself into a matter of pure outdoor air. Twenty-four hours a day in the outdoor air, winter and summer, are insisted upon. Since this has been made the chief point of treatment, and other matters made secondary to it, the mortality from consumption is being reduced.

As heating materials become more expensive, greater economy in conserving the heat in buildings is practised. The proprietors in office buildings conserve the heat by minimizing the amount of fresh air which they allow their tenants. Colds are the result.

The importance of pure air in the treatment of pneumonia is becoming well appreciated. There is no greater sin committed against a patient suffering with pneumonia than that of keeping the windows closed and ventilation shut off in his sickroom. I have recently seen a case of pneumonia being administered artificial oxygen in a room tightly closed and heated by a radiator. When the windows were opened and the patient given a fair chance simply to have pure normal air, there was no necessity for the artificial administration of oxygen.

Lying at the foundation of the popular aversion to pure air is the ancient error that colds are due to cold air in the winter time; and the mysterious miasms, supposed to reside in the night air, in the summer time. We now know that colds are not due to cold, and that the chief dis-

ease-bearing emanations of the night reside not in vague ethers, but in insects.

Chemical science and physiology have not yet completed the analysis of the air and the study of its relation to the human organism. There yet remains much to be learned concerning this vital fluid. There is something more in air than oxygen that we need.

Pure air is one of Heaven's greatest gifts. It contains the most important elements of our food. We were born into it and adapted to its use. Of those who live in it, it breeds a race of strong men. And those who continually breath it when polluted and defiled pay the penalty of weakness and emasculation.

THE CARBOHYDRATE REACTIONS OF THE PARATYPHOID OR PARACOLON GROUP (PRELIMINARY COMMUNICATION).[1]

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For the past two years a number of cultures of bacteria belonging to the group known variously as the Gärtner, the Hog Cholera, the Intermediate, the Paratyphoid, or the Paracolon Group, have been tested upon a large series of carbohydrates, with the purpose of determining whether any cultural criteria can be established to account for the variations in agglutinability shown by the different members of this group. As requisite cultural reactions for including any particular micro-organism in the group the following characteristics have been considered essential, viz., bacilli measuring from ½ to 1 micron in width by 1 to 2 microns in length, exhibiting definite motility due to the possession of peritrichic flagella; development upon the surface of flat media, such as agar and blood serum, as a fairly thick, moist, translucent growth similar in general to that produced by *Bacillus coli* or *Bacillus typhosus;* agar and gelatin colonies when deep, being round or oval and showing frequently fairly definite nuclei, when superficial, being flat, rather thin, opaque, with circumscribed or slightly crenated borders; no pigment production; no spore formation; no secretion of proteolytic enzymes and hence no liquefaction of gelatin, casein or blood serum; fermentation of dextrose with the production of acid, and gases in variable quantity but with a definite ratio of hydrogen to carbon dioxide, there being two or three of the former to one of the latter; no fermentation of saccharose or lactose, the reaction in the presence of these sugars becoming alkaline; growth in milk either showing a preliminary acidity yielding to a terminal alkalinity, the alkali being sufficient to saponify the proteids in the milk, or showing a definite persistent acidity not great enough in any case to coagulate, these milk reactions forming the basis for the ordinary division of the group into two main subgroups, Type A and Type B.

[1] From the Bacteriological Laboratory, Johns Hopkins University.

The following cultures have been available for study, many of them being strains obtained from different sources and kept in stock in the bacteriological laboratory of the Johns Hopkins Hospital, and many of them being personal isolations by the writer from the contents of the intestinal tract or from the internal organs at autopsy.

Bacillus of Hog Cholera.—Five cultures, one obtained from the Bureau of Animal Industry, one from the Army Medical Museum, two by Billings from epidemics of Hog Cholera and labeled by him, "Schweineseuche," and one from Dr. Theobald Smith, originally derived from an epidemic of the disease in Maryland.

Bacillus enteritidis of Gärtner.—Obtained from Dr. Durham of Cambridge, England.

Bacillus typhi murium.

Bacillus septicus murinus.—Obtained from Dr. Carter from an epizootic among guinea-pigs in the Pathological Laboratory of the Johns Hopkins Hospital.

Bacillus of Swine Dysentery.—Obtained from Dr. Theobald Smith.

Bacillus of Cattle Disease.—Obtained by Dr. Möhler from an epidemic among cattle, and studied in the Bureau of Animal Industry.

Bacillus of Rat Plague.—Obtained from Dr. Rosenau of the Bureau of Public Health and Marine Hospital.

Bacillus septicus murinus.—Obtained from Kräl.

Bacillus icteroides.—Two cultures, one from Dr. Sanarelli, Hygienic Institute, Bologna, and one from the Pasteur Institute, Paris.

Various paratyphoid or paracolon cultures isolated in different laboratories and known in the literature by the names of the investigators obtaining them, viz., Buxton, Gwyn, Cushing, Strong, Wells and Scott, Smith, Kurth.

Other paratyphoid or paracolon cultures known as Badach, Milefsky, Olsen, Müller, nad Hunnamann, and obtained from cases of paratyphoid fever by Johnston, Howard and Schottmüller.

Finally, eight cultures obtained by the writer from more or less normal individuals in whom the occurrence of the organisms could in no way be associated with pathological changes. Several of the latter cultures were obtained from individuals suffering with transient diarrhea, others from the intestinal tract or the internal organs at autopsy.

As control cultures, *Bacillus coli* and *Bacillus alcaligenes* Petruschky were employed. The culture of *Bacillus coli* was obtained by Dr. Jobbling from the normal intestinal tract and ferments dextrose, saccharose and lactose. That of *Bacillus alcaligenes* was obtained in the Pathological Laboratory of the Johns Hopkins Hospital by Dr. Harris, from an autopsy where a terminal invasion by this micro-organism had occurred. It agreed in all details with the original descriptions given by Petruschky. Both the *Bacillus coli* and the *Bacillus alcaligenes* were of considerable virulence for smaller animals.

All the cultures studied were subjected first to careful preliminary plating and cultivation, to restore to them any latent activities. They were originally tested nearly two years ago. Subsequently, they were kept in stock in the Bacteriological Laboratory, and again tested upon the entire series of carbohydrates. These were utilized in one per cent. solution added to sugar-free broth in the Smith fermentation tube, being sterilized by the use of streaming steam for one-half hour for three successive days. The following carbohydrates were employed:

Mono-saccharids, dextrose, levulose, galactose, mannose.

Poly-saccharids, saccharose, lactose, maltose, melitose, raffinose, melibiose (hydrolysis of raffinose), arabinose, xylose, rhamnose.

Alcohols, mannite, dulcit, erythrite.

Starch, dextrin, inulin.

Certain of these substances proved to be of no value for differentiation, not being attacked by *Bacillus coli* or by any members of the group in question, and may therefore be left out of consideration. Here may be included dextrin, inulin, glycerin and erythrite. Although both dextrin and glycerin have been stated by certain observers to ferment with *Bacillus coli,* fermentation does not occur with pure samples of these substances and the various cultures of *Bacillus coli* which we have in the laboratory. This point, however, still needs confirmation, but for our present purpose it is of no importance.

The reactions obtained by the use of this wide range of carbohydrates shows definitely that the *paratyphoid* and *paracolon* group, as now defined, embraces a number of different micro-organisms with a wide range of fermentative activities, and I therefore submit the following scheme as a preliminary report upon a rearrangement of the entire group from *Bacillus alcaligenes* to *Bacillus coli.*

Type I.—Ferments no carbohydrates. Represented by *Bacillus fæcalis alcaligenes* Petruschky.

Type II.—Ferments the Monosaccharids, dextrose, galactose, levulose, mannose, and the Polysaccharid maltose. Represented by a number of cultures isolated by the writer from the contents of the normal intestine.

Type III.—Ferments the Monosaccharids, dextrose, galactose, levulose, mannose, the Polysaccharids, maltose and rhamnose, the Alcohols, mannite and dulcit. Represented by the Bacillus of Hog Cholera, all the cultures of which agree in their fermentative reactions.

Type IV.—Ferments the Monosaccharids, dextrose, galactose, levulose, mannose; the Polysaccharids, rhamnose, maltose and arabinose; the Alcohols, mannite and dulcit. Represented by *Bacillus typhi murium, Bacillus paratyphoid Müller* (Schottmüller), *Bacillus paracolon* Gwyn, *Bacillus paracolon* Olsen (Howard), *Bacillus paracolon* Badach (Johnston), *Bacillus paracolon* Milefsky (Johnston).

Type V.—Ferments the Monosaccharids, dextrose, levulose, galactose, mannose; the Polysaccharids, maltose, rhamnose, arabinose, xylose; the Alcohols, dulcit and mannite. Represented by *Bacillus enteritidis* Gärtner, *Bacillus cattle disease* Möhler, *Bacillus rat plague* Rosenau, *Bacillus septicus murinus, Bacillus of guinea-pig disease* Carter, *Bacillus of swine dysentery* Theobald Smith, *Bacillus icteroides* Sanarelli, *Bacillus icterioides Pasteur Institute, Bacillus paracolon* Cushing, *Bacillus paracolon* Strong, *Bacillus paracolon* Buxton, *Bacillus paratyphoid* Hunnamann (Schottmüller) *Bacillus paratyphoid* Kurd.

Type VI.—Ferments the Monosaccharids, dextrose, levulose, galactose, mannose; Polysaccharids, saccharose, lactose, maltose, xylose, arabinose, rhamnose, melitose, raffinose, melibiose; Alcohols, dulcit and mannite. Represented by *Bacillus coli.*

This last type may, of course, be subdivided according to the fermentation of saccharose into two varieties of *Bacillus coli,* one fermenting and one not fermenting this sugar.

A number of interesting facts appear from a consideration of these fermentative reactions, which justify the use of such a large number of carbohydrates and suggests the practical value of the use of some of the higher sugars, notably arabinose and xylose. Of greatest importance possibly is the readiness with which the bacillus of Hog Cholera can be differentiated from the other members of this group. The particular series of carbohydrates fermented by this bacillus, consisting of dextrose, levulose, galactose, mannose, rhamnose, maltose, dulcit and mannite, is not fermented by any other organisms now in the laboratory, and we are thus able to distinguish the hog cholera bacillus from *Bacillus enteritides* Gärtner, from bacillus of cattle disease Mohler, from bacillus of swine dysentery, from the micro-organisms parasitic in some of the smaller species of animals, as guinea-pigs and rats, and from those parasitic in man, such as *Bacillus icteroides* and the various paratyphoid bacilli.

Next, the paracolon bacilli belonging to the normal intestinal tract can be easily distinguished from those isolated from cases of general infection in man, by their low fermentative powers, standing close to *Bacillus alcaligenes* in this respect; while the micro-organisms isolated from pathological conditions appear to be much more closely allied to the typical *Bacillus coli.*

Finally, the separation of the paratyphoid or paracolon bacilli proper into two main subgroups, Type A and Type B, according to their milk reactions, as was pointed out by Buxton, Johnston, Brion and Keyser, and several others, is confirmed by the action of these different cultures upon xylose. This may prove to be a point of considerable importance, inasmuch as practically all the members of this group when tested repeatedly and carefully exhibited a terminal alkalinity in milk, this alkalinity varying in the time of its development dependent upon the activity of the micro-organisms.

This "scheme" is, of course, open to criticism and its arrangement may have to be modified subsequently. In view of the fact, however, that agglutination reactions are being conducted upon the various members of this group according to the rearrangement, the results of which cannot possibly be published for some months, it was deemed advisable to publish this work in its present condition.

MEDICAL PROGRESS.

MEDICINE.

Uric Acid.—In the May 13 issue of *The Journal A. M. A.* is completed a series of special editorials critically summarizing what is known of the physiological and pathological action of uric acid in the human organism. It is surprising, *The Journal* remarks, what a small bulk of well-determined facts has been accumulated and how much time and labor have had to be spent to prove the erroneousness and harmfulness of most of the speculative views that have been advanced. It is worth much, however, to have learned the chemical and physical qualities and relationships of uric acid; to have distinguished the exogenous and endogenous uric acid of oxidative origin and between these and that of synthetic source; to be informed, even partially, as to the methods of its formation and destruction, and the approximate localization of these processes in the body; and to have recognized that the substance probably circulates in the blood chiefly as mononatrium urate or in combination with thymic acid. It is also of importance to have learned on the pathological side that gout is probably the only disease for which disturbances of uric acid metabolism are directly and mainly responsible. The bearing of the facts so far ascertained on the rational treatment of gout is pointed out. In combating the primary disorder of metabolism we must protect against the influences that favor its development, and we may also attempt to prevent the deposit or excess of uric acid or urates in the body. The formation of exogenous uric acid can be largely controlled by diet, limiting the nucleins and purin derivatives in the food. There is no certain proof that drugs can diminish urie-acid formation, though chinic acid has been reckoned as one that does so. If it has such effect its mode of action is not known. To increase uric-acid excretion, the best means is to increase the secretion of urine; hence, copious water drinking is advised. How to destroy uric acid in the body is not clear; there is no proof that there is any diminution of the oxidative processes in gout or any basis for the view that drugs hasten uric-acid destruction. The fallacies of the popular so-called "antilithic" and "uric acid solvent" treatments are shown by the fact that it is impossible to produce in the blood and tissue juices exactly the soluble urate needed, and by the further fact that the solubility of any urate is decreased by the sodium salts in the blood. If uric acid is to be rendered more soluble in the blood it must be by the formation of some easily soluble combination with other organic compounds, with production of substances which are not dissociable, *i.e.*, which are not salts. Uric acid combines with thymic acid in this way, and also with formaldehyd, forming a non-salt-like compound, but it is doubted whether such substances ever really exert any beneficial influence in gout. On the whole, the best that can be expected from drugs at the present in gout appears to be the relief of pain by the salicylates, colchicum, etc. The mainstay of the therapy in the disease consists in a well-regulated regimen, for the acute attack rest and local applications, and for the tophi in the joints local phagocytic activity may be excited by means of hot applications and massage.

Alleged Destruction of Red Blood Corpuscles in the Spleen.—Edward T. Williams (*Amer. Med.*, May 13, 1905) gives a complete translation of Kölliker's utterances on this subject, taken from his work on "Microscopical Anatomy." Kölliker thinks that red blood corpuscles are not a natural element of the spleen, but result from hemorrhagic effusion. They then pass into dissolution. This occurs through the formation of large blood-corpuscle-holding cells, by the spontaneous development of an investing membrane round a clump of corpuscles and of a nucleus in the interior. The corpuscles immediately break up into pigment granules and soon disappear altogether. This is seen in almost all animals. The arguments pro and con are stated at length, and the author confesses that he was often tempted to abandon the theory and go over to the opposite view of Hewson, but always came back to his original opinion. In commenting on this theory, Williams declares that the idea of a perpetual splenic apoplexy affecting all animals throughout life without the slightest effect on their health is inconceivable. Moreover, the alleged effusion never clots, never distends the organ, never displaces the tissue fibers, and never excites inflammation. Kölliker fails to state his method of examination. He used no fixatives, and tacitly admits that he examined some specimens in water. He used pathological, and, probably, partly decomposed spleens. Scherer, as quoted by Kölliker, found putrefactive products in spleens, which could not have occurred had he used fresh specimens. Williams found dissolving blood corpuscles in specimens treated with water, salt solution, artificial serum, and to some extent in preparations fixed by heat and stained with watery solutions of the aniline dyes. Since he had used only fresh spleens fixed with sublimate-salt and stained with hematoxylin-casin he found none at all. Hence, he was forced to conclude that Kölliker's theory was a chimera. Kölliker was a great anatomist, but not a great thinker. He is believed to have been mistaken in the present case.

The Treatment of Pulmonary Hemorrhage.—W. A. Dickey (*Med. Standard*, May, 1905) considers that in the great majority of instances hemorrhage from the lung is due to the erosion of a blood vessel in a tuberculous cavity. It often becomes a serious question of what is to be done in these cases. The author considers that in the general treatment the patient should be kept as quiet as possible, in some cases not even allowing him to be moved. The clothing should be loosened and the patient placed in a semi-recumbent position, and on the diseased side. This position favors gravity, the heart being less able to propel the blood into the ruptured blood vessel; hence, the clot is more readily and quickly formed. This position also favors the removal of blood and mucus. If fiber hemorrhage is at all severe, the patient should be given one-fourth grain of morphine with one one-hundred-and-fiftieth of a grain of atropine. In this way he is quieted, the cough relieved and the shock from which he is suffering is very largely overcome. If the heart continues to beat rapidly and forcefully there are three remedies that should always be thought of: Aconite, gelsemium and veratrum viride. These are all cardiac depressants, reducing the force and frequency of the heart action. At present adrenalin chloride is being highly recommended, but it is extremely doubtful if it affects deep-seated hemorrhages. In the more pronounced cases subcutaneous injections of 40 to 50 c.c. of

a 10 per cent. solution of sterilized gelatin can be used with advantage. Pellets of ice, by mouth, and an ice-bag over the affected side areuseful. In those rare cases in which the individual is well-nigh exsanguinated in a short time, and the heart becomes weak, feeble and rapid, the eyes sunken, the nose pinched, the skin cold and clammy, in short, every symptom of collapse is present, prompt action is necessary. Digitalis should never be used. Camphor hypodermically given in sterilized olive oil, one part to four of oil, aromatic spirits of ammonia, hypodermoclysis and enteroclysis are advised. Bandaging of the extremities for periods of fifteen minutes is followed by good results. The diet advised is liquid, and should be highly nutritious.

The Desmoid Test.—In a second communication, H. SAHLI (*Corresp. f. Schweiz. Aerzt.*, May 1, 1905) describes the practical value of the desmoid test, introduced recently to replace the more troublesome expression of the stomach and chemical examination of the stomach contents. Briefly, the method consists in giving per os a small pill of iodide of potash or methylene blue, enclosed in a small gutta-percha bag, which is tied off by means of a small strand of raw catgut. This catgut will not be affected by the pancreatic secretion, and will only dissolve in the stomach if there is free hydrochloric acid present. The fact that it has dissolved can be determined by examining the urine for iodine or methylene blue or the saliva for iodine. The bag is swallowed directly after dinner, between 12 and 1 o'clock, and the urine then tested between 5 and 7 o'clock in the evening, and again the following morning. An early positive reaction will be evidence that the stomach has digested the meal, while absence of reaction will point to a lask of hydrochloric acid. In a few control cases the catgut was evidently digested, yet the stomach contained no free acid after a test meal. The explanation of this is that the dinner which precedes the pill is a much stronger stimulus than the test breakfast, and may yet bring about sufficient secretion to digest the meal satisfactorily. The desmoid test is, therefore, a more delicate test for the digestive function of the stomach than even the test breakfast.

Left-Sided Gastric Pain.—Prof. RIEDEL (*Münch. med. Woch.*, April 25, 1905) points out that gastric pain occurring reflexly from disease of other abdominal viscera is most often referred to the right side, so that left-sided gastric pain, in the great majority of cases, signifies an affection of the stomach itself. The only two exceptions, fat necrosis of the pancreas and splenic abscess, are so rare that they can be disregarded. An ulcer situated at the pylorus is much harder to diagnose than one in the body of the stomach, since the former gives rise to pain on the right side, which often cannot be distinguished from the pain caused by cholecytitis. With ulcers of the antrum pylori, the pain is accurately referred to the median line just like the reflex abdominal pain caused by chronic appendicitis and that of a hernia of the linea alba. Tumefaction is exceedingly common with ulcers, since the muscularis and serosa will thicken and adhesions will readily form with the neighboring organs, particularly the liver and the pancreas. A mass may thus be felt to the left of the median line, if the ulcer is situated in the middle portions of the stomach. It is very important to diagnose the case sufficiently early, since the end result will be an hour-glass stomach, which can only be treated by means of an operation. The history is rather characteristic: At first there is an attack of left-sided pain directly after eating, lasting several hours. Several months later there may be another attack, the stomach having been perfectly normal in the meantime. In six months or so the pain comes more often and lasts as long as twelve hours, and the irritability of the stomach increases. Finally, vomiting sets in half an hour after a meal. This is purely reflex, since a stenosis has not yet formed. The pain is now permanent and vomiting occurs daily, but blood is found in only half of the cases. Operation is indicated, if rest in bed for several weeks with hot applications and fluid diet does not result in a cure.

The Early Diagnosis of Tuberculosis.—F. MARIANI having investigated urinary tuberculosis, has come to certain conclusions regarding its early diagnosis (*Wien. klin. therap. Woch.*, March 12 and 19, 1905). In his first experiment he used two patients, one with tuberculosis of the lungs and broncho-pneumonia, the other did not have tuberculosis. The twenty-four-hour amount of urine was collected from each. One thousand c.c. of each was taken and evaporated and reduced to 20 c.c. on a water bath. Four guinea-pigs were injected with 5 and 10 c.c., respectively, of the urines. The same night all four of the animals were dead. Hence, he concluded that concentrated urines were toxic. In the second experiment, urines of two patients, one with tuberculosis, the other without, were used. These were reduced to one-fiftieth of their original volume as before. The concentrated urines were then put in dialyzing tubes and left in running water for forty-eight hours. Two healthy guinea-pigs were injected with 5 c.c. of concentrated and dialyzed urine of each patient. After forty-eight hours the pigs injected with the urine of the tuberculous patient were dead, while those of the other patient were well. This experiment was repeated with five other pigs with the same results. The author's conclusions from this experiment are that the concentrated and dialyzed urine of a patient suffering from tuberculosis contains poisonous material which kills healthy guinea-pigs, while that of a non-tuberculous person is harmless to them.

In the third experiment, he added 5 c.c. of a solution of tuberculin to 400 c.c. of urine from a healthy person. This was reduced and dialyzed as in the second experiment. If none of the tuberculin has been lost a guinea-pig weighing 500 gm. should be killed by it. Instead of one, two, weighing 260 gm. each, were used, and after two days died. Autopsy showed the congestion typical of tuberculin poisoning. The inference drawn from this experiment is that the tuberculin is not broken up during the experiment, nor is it lost in dialyzing. For experiment (No. 4) four guinea-pigs were taken of about 300 gm. weight. Two were injected with 5 c.c. of urine of the tuberculous patient mentioned in experiment No. 2, the urine being concentrated and dialyzed as usual. Two other pigs were treated the same way, except that 1 c.c. of antitoxic serum was injected. The two treated with the urine alone died, while those injected with antitoxic serum were alive three days later. The conclusion from this experiment is that the urine of a person suffering from tuberculosis contains tuberculin.

In experiment No. 5, five patients were used, one with pneumonia, one with typhoid fever, one with facial erysipelas, one with carcinoma of the stomach with cachexia, and the last with influenza and broncho-pneumonia. Twenty-four-hour amount of urine was taken from each, treated as in the former cases, and two pigs injected with 5 c.c. of prepared urine of each patient. All pigs were alive two days later. He concluded that the urine of patients with or without fever, who have no tuberculosis, contains no poison which can kill a healthy guinea-pig. The same fact holds with the urine of patients who are well. In experiment No. 6 three patients with bronchiolitis circumscribed at one point, in whom

the general condition was very good, fever absent but tubercle bacilli present, were used. Healthy rabbits were injected with 5 c.c. of urine prepared as above, and none died. The conclusion in this experiment is that the urine of tuberculous patients without fever, whose general condition is good, and the disease circumscribed, has no poison the result of tuberculosis which can kill healthy guinea-pigs.

In experiment No. 7 20 healthy pigs were inoculated with virulent cultures of Koch's bacillus. Seventeen days later all had tuberculosis, as evidenced by temperature, loss of weight and enlarged glands. The urines of the three patients with the circumscribed processes in the last experiment were then collected, together with that of three others, one with typhoid fever, another with anemia from anchylostomiasis, and the other a healthy person. The urines were treated as usual and 5 c.c injected into the tuberculous guinea-pigs. Those subjected to the urines from the tuberculous patients died in two days, while the other three showed no dis-subjected to the urines from the tuberculous patients died in two days, while the other three showed no disturbance. The conclusions in this experiment show that the urine of the tuberculous who are in good condition contains tuberculous poisons which kill tuberculous guinea-pigs, while the urine of a healthy person or one sick of other diseases does not possess this property. In experiment No. 8 the urine of a patient supposed to have tuberculosis (with emaciation, anemia, no temperature and no localization) is treated as usual, and 5 and 10 c.c. injected into two tuberculous rabbits. Both survived. The serum of this patient agglutinates with a homogeneous culture of tubercle bacilli, concentration 1:20. By another method the author now proceeded to concentrate the urine, *i.e.*, at a temperature of 104° F., in a partial vacuum. Brought down to the same concentration as before, they were then dialyzed as usual. The agglutination of the resulting liquid was tried with a culture tubercle bacilli and found positive 1:40. Two guinea-pigs were then given a deadly dose of tuberculin, plus 5 c.c. of this liquid, while to a third one was given tuberculin only 1:100. After two days the last pig died, while the two former were alive. The urine of this patient contains no tuberculous poisons which can kill tuberculous guinea-pigs, yet there is in it agglutinins and the antitoxins of tuberculosis. In other words, the patient was tuberculous and produced antitoxin in excess. In order to be more sure in this last experiment the patient was given 1 mg. of tuberculin. Six hours later the temperature was 100.1° F., which showed that tuberculosis was present in a latent condition. In experiment No. 9, a typhoid fever case, twentieth day, serum diagnosis present 1:80. Urine treated as in experiment No. 8, and its agglutination tried with a typhoid culture; result positive, 1:200. The agglutination is not destroyed in a vacuum by diagnosis. In experiment No. 10 the urine of a case thought to be tuberculous meningitis was taken. Treated as in experiment No. 9. Two guinea-pigs were inoculated with 5 c.c. of this urine. The animals died in thirty-six to forty-eight hours. The diagnosis of tuberculosis was confirmed at autopsy. Another case supposed to be tuberculous came to the clinic, showing no objective evidence. Five c.c. of urine, which was prepared in the usual way, was injected into animals, but they did not die. The urine, treated by the cool method, showed agglutination at 1:20. A healthy guinea-pig was inoculated with 5 c.c. of this urine, plus a deadly dose of tuberculin, while another pig received only tuberculin. The first animal lived, the second died in three days. Diagnosis: Latent tuberculosis, with a tendency to form antitoxic substances. The patient showed a positive reaction when 1 mg. of tuberculin was injected. Experiment No. 12. A patient, thirty-two years old, who had suffered for three months with slight hemoptysis. No objective signs. The urine was prepared by the warm method, and 5 c.c. injected into two pigs. One died after two, the other after five days. Diagnosis: Latent tuberculosis. On completing the history it was learned that the mother and two brothers had died of tuberculosis, and a third brother had it. Experiment No. 13. Tuberculosis in the family history. The woman, who had gone through two pregnancies, wanted to know if she could hope to go through a third normally. No objective signs of tuberculosis. The urine, treated as usual, kills guinea-pigs. Tuberculin injected gives a positive reaction. Experiment No. 14. Two urines from unknown patients obtained from Prof. Maragliano. Half of each urine was treated by the warm and half by the cold method. Urine No. 1, concentrated by heat, killed tuberculous guinea-pigs. The part treated by the cold method showed no power of agglutination. Diagnosis: Tuberculosis, with little resisting material. Urine No. 2, concentrated by heat does not kill tuberculous guinea-pigs. The urine treated by the cold method agglutinates 1:30. Latent tuberculosis, with formation of antitoxins, was the diagnosis. These diagnoses agreed with those previously made by Prof. Maragliano. Experiment No. 15 consisted in taking the urine of three patients suffering, respectively, from alcoholism, neuralgia and mitral insufficiency. All were robust and tuberculosis can be certainly excluded. The urine was treated both by warm and cold methods. Two tuberculous guinea-pigs were inoculated with the urine of each, and none died. The agglutination was tried in the urine by the cold method, and found to be negative in every case. To determine the possibility of antitoxin being present in those patients, three healthy guinea-pigs were given a deadly dose of tuberculin, plus 5 c.c. of urine prepared in the cold way. All three died in the course of three days. Therefore, there was no antitoxin in their urines. Next, the same three patients were each subjected to of 1, 2 and 3 mg. of tuberculin at intervals of three days, with negative results. The conclusion from this experiment is that non-tuberculous individuals have in their urine neither toxins, agglutinins, nor antitoxins.

General Conclusions.—The poisons of tuberculosis, agglutinating substances and antitoxins, can all be found in the urine of a patient affected with latent tuberculosis. It is possible to make an early diagnosis of tuberculosis or a diagnosis of latent tuberculosis from an investigation of the urine. It can be determined from an investigation of the urine whether or not a person affected with tuberculosis generates in his own organism protective substances, a condition of great importance in the prognosis.

Serum Treatment of Anthrax.—With the increase of our territorial possessions, it has become almost as necessary for us to watch for the occurrence of tropical diseases in our own homes as is the case with England. T. M. LEGGE (*Lancet*, March 25, 1905), his Majesty's Medical Inspector of Factories, reports that the treatment of anthrax has been conducted along three lines. The first was expectant, the second, by far the commonest, consisted in the removal of the pustules by surgical means or by cauterization and injection. The third, as practised notably in Italy and South America, consisted in the use of serum from immunized animals. In Jena the first method had been recently subjected to severe trial. Müller reports 13 consecutive cases in which nothing more than rest and the application of grey ointment was used. The average duration of treatment is sixteen days. Müller obtained excellent results, but

his conclusions, which contraindicate surgical intervention, are very sweeping. Legge has shown that the average mortality of the disease when treated by either the first or second methods was at least 25 per cent. The great objection to the use of the excision method is that the scar is often a very serious consideration. Scalvo, of Italy, has prepared an antitoxin which has been used very successfully by Lazeretti, of Siena, and by Cicognani, of Santa Croce. Of 67 cases, 56 were treated by serum alone. With the exception of the cases which terminated fatally, in every instance but one by the third day there was marked improvement, particularly in the arrest of the further development of the pustule and in the diminution of edema. There were two fatal cases. In the first, the patient was the subject of malaria was alcoholic and syphilitic. In 1903 Scalvo totalled 164 cases, with ten deaths, or less than 7 per cent., as compared with a total for the whole of Italy of 24.1 per cent. when treated by the usual methods. For the last eight months serum treatment has been used in England either with or without excision of the pustule. The claims of the serum treatment may be summarized as follows: (1) Even in very large doses it is innocuous. (2) It can be well borne, even when introduced into the veins. (3) No case taken in an early stage or of moderate severity is fatal if treated with serum. (4) With the serum some cases are saved when the condition is most critical and prognosis almost hopeless. (5) When injected into the veins the serum quickly arrests the extension of the edematous process so as to reduce notably the danger from suffocation which exists in many cases where the pustule is situated on the face or neck. (6) If used soon enough, it reduces to a minimum the destruction of the tissues at the site of the pustule. (7) In some situations of the pustule, as the eyelid, serum treatment must be used in preference to any other, as it alone can hold out hope of success without permanent injury; and to these may be added: (8) That in internal anthrax it is the only treatment which holds out any hope of benefit. In almost all cases injection of the serum is followed by a rise in temperature, often to over 105° F., and with it there is an improvement in the general health of the patient. In the same way the necrotic process itself is to be regarded as a sign that the organism is making effort to resist the anthrax infection. In the Pathological Institute at Sienna, the serum is taken from asses which undergo immunization processes for about two years. Often more than fifty sera are taken at different times from the same animal. Three days after taking it, the clot having separated, the serum was decanted and ether to the extent of 3 per cent. of the whole bulk was added. Rabbits were then injected, and in thiry-six hours all the control animals were dead. They showed extensive edema at the point of inoculation, and anthrax bacilli were found in the blood at post-mortem. It would seem that the time had already come when anthrax would be considered as one of the few diseases which actually yield satisfactorily to serum treatment.

New Methods of Studying Affections of the Heart.—It appears that the sphygmograph has by no means been exhausted. JAMES MACKENZIE (*Brit. Med. Jour.*, March 11, 1905) endeavors to show in an interesting monograph that he has accumulated evidence that many signs are present if obtained correctly and interpreted in the light of recent progress that may profoundly modify our conception of many conditions of cardiac disease. He attacks the subject first from the standpoint of the function of the heart muscle fibers. These have been described as rhythmicity, excitability, contractility, conductivity and tonicity. By virtue of these adherent functions, the heart is able to beat and keep up the circulation of blood independent of any nervous resistance. Arrhythmia may be due to affections of any one of these functions, either one affected independently of the other.

PATHOLOGY AND BACTERIOLOGY.

Preliminary Communication Regarding an Immune Body capable of Inhibiting the Development of Cancer in Mice (Adeno-Carcinoma, Jensen).—Preliminary investigations regarding the influence exerted by the serum of mice, which have recovered from experimental carcinomata, upon those is considered by CLOWES (*Bull. Johns Hopkins Hosp.*, April, 1905). The author's communication is based upon experiments upon mice by inoculating them with portions of living tissue received from Prof. Jensen, of Copenhagen. He did not in the course of his experiments observe any marked hereditary tendencies in the production of cancer. In some cases an exceptionally large percentage of tumors were obtained on inoculation of the offspring of mice that had themselves exhibited a considerable resistance to inoculation. In a number of mice inoculated spontaneous retrogression of the tumors occurred. A series of experiments were undertaken making use of both gray and white mice, having tumors varying from the size of a pea to that of large cherry. In every case two mice derived from the same source inoculated at the same time and having tumors of about the same size, were used for comparison, one receiving a dose of the blood obtained by killing one of the spontaneously recovered mice, the other receiving an equivalent dose of normal mouse blood. A marked effect was exerted by the immune serum on small tumors, three of which about the size of peas disappeared in four or five days, residues consisting almost entirely of connective tissue being all that was to be found on subsequent operation. A larger tumor, about the size of a cherry, treated in the same manner diminished considerably in size, became harder and remained stationary in its development, was removed successfully by operation, and had not recurred in the course of one month. Tumors weighing more than three or four grams were not appreciably affected by the serum, but the cachexia from which the mice suffer in the last stages were in all cases noticeably alleviated. The tumors in the control mice referred to above, which had received the normal serum were unaffected and developed in the usual manner, and eventually lead to the death of the animals. The serum of the mice cured of their tumors by the above treatment was found to possess a certain degree of activity, in one case causing the disappearance of a tumor as large as a buckshot in less than two days, but it can scarcely be said to have exhibited as great a degree of activity as did that which was obtained from certain spontaneously recovered mice. Experiments were carried out on twenty mice. Of those treated with repeated doses of the so-called serum one only has failed to show some effect which may be attributed to the serum, and all are still living. Of those treated with equivalent doses of normal serum, five are already dead and the remaining mice have tumors exceeding in size those of the mice for which they served as controls. A series of test tube experiments carried out to determine the nature of this serum makes it appear extremely improbable that it can be classed in the category of cytolysins. It does not exert a more marked hemolytic effect than does normal serum or the serum of a mouse dying of cancer. In general, it may be said that the changes found in the spontaneously cured tumors and in those inhibited or cured with the immune serum, correspond fairly closely to the changes already

described by several authors as indications of partial spontaneous recovery from human cancers.

Collecting Blood for Widal Test.—Very many methods have been suggested for collecting the blood necessary for the Widal test, if the examination cannot be made on the spot, but the majority are deficient in that it is impossible to accurately measure the amount withdrawn. An excellent device, which deserves popularity, is that of E. SCHOTTELIUS (*Münch. med. Woch.*, April 11, 1905). The apparatus consists of a small vial, whose stopper carries a needle around the free end of which a small amount of cotton is wound. The cotton is allowed to absorb the blood to be tested, after which the vial is tightly stoppered. Later, when the test is to be made, the vial is simply placed into a centrifuge, when the serum will be thrown to the bottom, while the clot remains in the sponge. Accurate dilution by means of a pipette is then possible.

Smokeless Powders.—C. F. KIEFFER (*Journal A. M. A.*, April 29) reports an investigation on the pathological effects of the fumes of the high explosive now so generally in use. A number of different powders were tested regarding the gases given out and the effects on th human system. The latter series was carried out in a room. Dr. Kieffer experimented on himself and on several members of the hospital corps by exploding a carefully measured quantity of the powder in a sealed room containing about twelve hundred feet of air space and observing the effects. The chief symptoms was the well-known "dynamite headache," and the fumes seemed to have marked effects on the circulation and heart, with secondary effects on the nervous system. In some cases there was incoordination and diminution of hearing and of vision. Low temperature seemed to aggravate the conditions, and at least one person was found who appeared to be immune. In most cases a certain amount of tolerance is gradually established. Kieffer also mentions a patient seen in the Da Costa's clinic who could take six hundred and fifty drops of *spiritus glonoini* without serious effects. According to his finding the gases to which the effects are attributed are carbonic oxid and nitrogen peroxid, especially the latter, though the symptoms are due to the combination of both. To meet the nitrite poisoning endeavor should be made to restore the vasomotor tonus, and strychnine is indicated in full doses. The carbonic oxid will be eliminated rapidly in moderate cases, but in severe intoxications oxygen inhalations and artificial respiration may be required. For the headache, coal-tar anodynes are not only useless, but dangerous. The best remedies are strong coffee and a linseed poultice to the nape, as advised by Key. The danger from these fumes is a real one, as numerous fatal cases testify.

OBSTETRICS AND GYNECOLOGY.

The Artificial Interruption of Pregnancy by Bougies.—To rehabilitate the method of bringing on labor by means of the introduction of bougies, which was largely advocated by Krause, is the avowed object of a paper lately published by JACOBY (*Arch. f. Gyn.*, Vol., 74, No. 2.). The paper is based on a series of 228 hospital cases, and the procedure employed is essentially as follows: The patient is given a cleansing bath and the outer genitals washed with soap and water, but the vagina is not disinfected. The cervix is then seized with one or two bullet forceps, and a bougie (diameter, 8 to 10 mm.) provided with a stilet, is gradually introduced while guided by the finger and the stilet slowly withdrawn. The bougie may be carried up between the bag of membranes and the uterine wall without any trouble. In 191 cases, one bougie was sufficient, in 21, two were necessary, in 2, three, and in one, four. The average time before rupture of the membranes took place was twenty-four hours, to the completion of labor, 31.45 hours. The nearer the end of pregnancy the procedure was instituted, the more readily were labor pains elicited. The entire morbidity is stated by Jacoby to have been 6.8 per cent. in the 228 cases. Three cases of fatal issue may be ascribed to the employment of the method, two of these being sepsis, and one peritonitis. In the latter case the bougie failed and Cæsarean section was resorted to. In 114 cases the pregnancy was interrupted for narrow pelvis, in 65 of these, labor came on spontaneously; in 49 artificial delivery was found necessary. Of these children, 65 per cent. lived. As the morbidity rate is not higher than that of institutions in general, the method may be looked upon as quite free from danger and affording a favorable outcome for the child. The simplicity of the method and the frequency with which the labor terminates naturally, makes it superior to the dilating bags, which practically mean the introduction of an accouchement forcé, or to vaginal section.

A Review of Recent Work in Obstetrics; Accouchement Forcé and Vaginal Cæsarean Section.—Of the many methods that have been advocated recently, of dealing with the woman whose parturient canal is not fully opened up, but whose condition demands delivery within a definite time, W. E. FOTHERGILL (*The Proctitioner*, April, 1905), carefully summarizes the different methods in use, and recommends certain systems which he considers to be of practical value. The methods available by which the uterus may be emptied artificially, rapidly, and without any muscular exertion on the part of the patient may be stated as: (1) Manual dilatation; (2) Branched metallic dilators; (3) Multiple incisions and vaginal Cæsarean section. The nature of the indication for terminating pregnancy quickly has no influence upon the choice of the method to be used. This choice must be made with two things before the mind, viz., the speed with which it is necessary to deliver, and the state of the cervix. The author describes in detail the technic of each procedure. The method of manual dilatation as first described by Harris. While this method may be used in many cases where a more rapid means is not indicated it is open to the following objections: (1) It is more difficult to sterilize the hand than an instrument; (2) the work is excessively painful and fatiguing to the hand; (3) it often tears the cervix; (4) it cannot be begun until a finger and thumb can be got into the cervix; (5) it is too slow for some cases; and (6) in other cases it fails altogether. The writer advises that the process be conducted slowly, thirty minutes being suggested as a suitable time in most cases. The instruments advised by the author for rapid dilatation of the cervix are the mechanical dilators of the Bossi type and one designed recently by De Seigneux. The claims made by the advocates of metallic dilators, are: (1) It can be used even when the cervix is closed and unshortened, that is, before dilatation has begun; (2) the operator is sure of obtaining sufficient dilatation to allow of the delivery of a living child; (3) this can be secured, if necessary, in a short time—ten to fifteen minutes; (4) the use of the instrument excites uterine action; (5) dilatation up to 11 cm. (4 ⅓ inches) can be secured without unduly stretching the vagina. The instrument of De Seigneux has the advantage of possessing a true pelvic curve and permits of more even dilatation. The method of allowing rapid dilatation of the cervix by multiple incisions, is that used by Duhrs-

sen. Its indications are where there is partial dilatation and it is necessary to deliver without further loss of time. Under these conditions five or six incisions made into the cervix give access to the uterus more rapidly than any other way. The incisions may be conveniently stitched as soon as delivery is complete, in order to check bleeding and secure primary union.

The other method of rapidly emptying the uterus and which is receiving considerable attention consists in the so-called vaginal Cæsarean section. This method was also brought into notice by Duhrssen. By this method it is possible to empty the uterus in six or eight minutes. The author gives the indications for vaginal Cæsarean section as follows: (*a*) In cancer of the cervix during pregnancy, the operation being followed by vaginal hysterectomy; (*b*)—(1) Abnormal conditions of the cervix and lower uterine segment (rigidity, fibroma, stenosis incarceration); (2) Dangerous states of the mother removed or relieved by prompt emptying of the uterus (heart, lung, and renal affections); (3) cases where death of the mother is imminent and can be foreseen. Thus there would appear to be room for vaginal Cæsarean section amongst those cases which would dilate safely and easily enough were time no object. In other cases, where the saving of a few minutes may save the life of a mother or child, the operation would appear to be justified. Its other use is obviously in cases where dilatation is impossible owing to stenosis or malignant disease. Vaginal Cæsarean section, in short, will tend to replace classical Cæsarean section, except in cases of mechanical obstruction by bony pelvis or by tumors. It is clear that both accouchement forcé and vaginal Cæsarean section demand a good operator, adequate assistance, and suitable surroundings.

Hepatic Insufficiency in Pregnancy.—J. CLIFTON EDGAR (*Journal A. M. A.*, April 8), comments on the mortality occurring during pregnancy, aside from known and preventable causes. He has examined the postmortem findings of women who have died during gestation from toxemia of pregnancy, and he insists on the importance of the study of the symptoms of this condition. Certain women have a predisposition to hepatic insufficiency and heredity should be considered. The excretions should be carefully examined, the mental state and nervous symptoms should be studied, and the possible periodic exacerbations should be looked for. If the symptoms of toxemia are found the examination should be still more detailed and thorough, and if the symptoms should indicate a progressive condition, with structural disease of the liver, the chances are against the patient. He discusses the interruption of pregnancy and the probability of an abnormal puerperium after pregnancy is successfully terminated. He concludes that the preventive treatment of much of the morbidity of pregnancy and of the puerperium depends on an early recognition of autotoxemia as it shows itself in the clinical picture of hepatic insufficiency. No one of large experience can fail to observe that many pregnancies are really pathologic, and he thinks that the specific toxemia of the condition will soon be generally admitted. There may be more than one toxic condition, but, in any case, hepatic toxemia should be kept in mind. It is important that a woman in this condition should be kept under the observation of the physician.

Placental Emboli.—The clinical fact that primary chorio-epithelivina occurs in organs more or less remote from the placental site led G. SCHMORL (*Centralb. für Gyn.*, No. 5, 1905) to investigate material obtained from autopsies of 150 women who died in the various stages of gestation and the puerperal state. Placental emboli were found frequently in the lungs but actual deportation of chorionic villi within the pulmonary vessels was only observed in cases where there had been delay in labor with mechanical injury to the placenta from manual separation. In only two or three cases were there proliferative changes in the cells composing the placental emboli. In three cases of vesicular moles pulmonary emboli showed that cell proliferation was taking place. The conclusion is drawn from these studies that progressive changes occur only in cases where there is degeneration of the placenta from which the deported cells are derived.

A New Operation for Vaginal Cystocele.—The treatment of prolapse of the anterior vaginal wall has never been thoroughly satisfactory. Vaginal cystocele may be a bulging associated with uterine descent or from a hernia pushing down the vaginal wall while the uterus remains in proper position. The operations devised for the relief of this condition are essentially the same, and consist in removing a portion of the anterior vaginal wall and bringing the margins of the gap together. Such methods leave a scar for support and narrow the vaginal outlet. In the repair of hernia of the bladder, the true floor of the pelvis, which is formed by the levatores ani muscles, should be made to form the main support. The levatores ani muscles at their origin from the pubic bones are 2 cm. apart, at the center of the vaginal outlet 3 cm., at the central point of the perineum 4.5 cm. At these three points the lower border of the main muscle lies 1.5 cm., 2.5 cm. and 3.5 cm., respectively, below the surface. An operation suggested by E. W. H. GROVES (*Jour. Obstet. and Gynecol. of the British Empire*, March, 1905) is performed as follows: A transverse incision is made from one labium majus to the other 3 cm. behind the urethral orifice, dividing the whole thickness of the vagina. The urethra and bladder are separated from the vaginal wall and the margins of the levatores ani muscles brought into apposition with two or three mattress sutures. These sutures should be 1.5 cm. from the margins of the muscles, which should be united by fine interrupted catgut sutures. This procedure forms a median muscular mass about 2 cm. long and 1.5 cm. thick, lying beneath and supporting the base of the bladder. The margins of the vaginal incision are united with catgut after any redundancy in the vaginal wall has been removed. The superficial cicatrix may be kept clean by a light gauze packing, which should be changed every time the catheter is passed.

Extra-uterine Pregnancy at Full Term. Total Extirpation of Uterus and Placenta by a New Technic.—HIRAM N. VINEBERG (*Am. Med.*, April 8, 1905) reports an interesting case of abdominal pregnancy at full term. The patient had lost considerable flesh, had a decided cachectic appearance, and the pelvis was filled with a somewhat hard nodular mass which seemed continuous with the pelvic walls. Vineberg correctly diagnosed the condition on the strength of an enlarged empty uterus (corresponding in size to the tenth week of gravidity) and the presence of milk in the breasts. Vineberg first ligated the ovarian and uterine vessels on the free side, cutting the uterus across at the level of the os internum without making any attempt to separate it from the mass to which it was most intimately united, and then ligating the uterine artery on the involved side. In this way he cut off the main blood supply before making the attempt to enucleate the enormous placental mass. As a result of this procedure he was enabled to separate the placenta from its extensive attachments with comparatively slight hemorrhage.

The procedure also rendered the work of enucleation more easy by enabling the operator to work from below upward, as one would in enucleating an intraligamentous cyst when a similar technic is followed. In some of the cases reported in the literature preliminary ligation of the blood supply was carried out. This was done by ligating the ovarian vessels, and the uterine also when feasible, on the side of the placental site, but not in Vineberg's case, by first tying the vessels on the free side. He considers this step an important advance, and hence lays much stress upon it.

NEUROLOGY AND PSYCHIATRY.

Relation between Disease and Weight of the Brain.—The possibility of being able to tell at autopsy, by purely gravimetric methods, whether or not the individual was the subject of cerebral disease, has been investigated by R. Mittenzweig (*Allg. Ztsch. f. Psych.*, Vol. 62, Nos. 1 and 2), with the following results: In the male, without respect to age, a brain-weight of less than 1,000 grams indicates the existence of some cerebral disease during life. The diseases to be thought of are paralytic dementia, senile dementia, and if the individual was over sixty years old, an organic phychosis. If one is dealing with a case of one who was undoubtedly insane during life, then if the patient was less than sixty years old, a brain weight of less than 1,000 grams indicates, in all probability, a functional psychosis. In the female, less than sixty years of age, a brain weight of less than 1,000 grams is evidence of a dementia paralytica or an organic psychosis. If over sixty, and the weight of the brain is less than 950 grams, then one must think of a senile dementia or an organic psychosis.

The Calcium Content of the Infant's Brain and its Significance.—Two important observations were made by R. Quest (*Jahrb. f. Kinderheilk.*, March 1, 1905): (1) The calcium-content of the brain of the newborn is relatively high, and with the growth of the child it gradually diminishes, rapidly during the first few months and then gradually. (2) The brains of children that had tetany during life, in comparison with those of tetany-free children, show a smaller amount of calcium. The former observation is explained as follows: It has been shown that the cortex rich in cellular nuclei contains more calcium than the white substance of the brain. In the newborn the gray-substance has been developed more than the white matter, which only in the course of the first and second years is developed. The diminution of calcium with advancing age has, therefore, an anatomical basis. This higher content of calcium in the brain of the young animal may or may not be associated with the lessened degree of excitability observed in the cortex of the newborn animal.

Pathology of Sciatica.—J. Ramsay Hunt (*Am. Med.*, April 15, 1905) records a typical case of sciatica with careful histological study of the affected nerve. To the naked eye the nerve trunk below the sciatic notch and in the popliteal space was swollen and distinctly enlarged. The swelling due to an accumulation in the perminol alveolar tissues of the translucent substance having the consistency of gelatine. A careful histological examination of the nerve by modern laboratory methods failed to reveal any structural changes of an inflammatory or degenerative nature. Hunt concludes that the so-called sciatica or more properly speaking sciatic perineuritis is not an inflammatory condition in the usual acceptation of the term. That the underlying change consists of a structureless transudate into the lymph spaces of the nerve sheath of obscure nature and origin, but probably dependent upon or closely allied to the gouty and rheumatic diathesis.

PRESCRIPTION HINTS.

Asthma and Adrenalin.—According to M. Aronsohn, the painting of the mucous membrane of the nose with a solution of adrenalin (1-1,000) arrests an attack of asthma in a very few minutes. It does not cure asthma, but affords rapid relief. If it were not possible to employ the solution, the following ointment might be substituted:

℞ Sol. of adrenalin .....20 to 60 mm.
Lanolin .....1 drm.
Vaselin .....1 drm.

About the size of a pea is introduced into the nostrils.

Dilatation of the Stomach.—Dilatation of the stomach is no longer considered as a morbid entity, but rather as a secondary affection.

In case of excess of hydrochloric acid, the following powders taken every three or four hours, according to the intensity of the symptoms, produce a rapid improvement:

℞ Bicarb. of soda .....10 grs.
Calcined magnesia .....10 grs.
Sub. nitrate of bismuth ..... 5 grs.
Prepared chalk ..... 5 grs.

Against constipation M. Sanpanet advises a glass of the following artificial mineral water:

℞ Phosphate of soda .....1 drm.
Bicarb. of soda .....1 drm.
Sulphate of soda .....½ drm.
Water .....1 quart

The laxative effects of this solution are very efficacious. The glass is taken fasting each morning for ten days in the month.

Ichthyol in the Vomiting of Pregnancy.—The persistent vomiting in pregnancy has been treated in divers manners, and numerous are the remedies prescribed to arrest it. The latest is that of ichthyol applied to the os, and which, according to some of my Paris confrères, acts like a charm. A mixture of glycerin and ichthyol (10 per cent.) is placed, by means of a plug of absorbent wool, in the vagina and in contact with the os. The remedy is simple and worth a trial.

Eczema of the Breast.—In no region is eczema more troublesome than that of the nipple and its aureola. It is accompanied with violent itching and oozing of serosity, which dries rapidly, forming soft and adherent crusts, which easily become detached, leaving a raw and bleeding surface. In a large number of cases treatment is slow to produce effects, and frequently it persists in spite of every means employed.

The treatment that has the best chance of success is that of extreme cleanliness. The parts should be washed with antiseptic soap, and a tannin lotion (1-100) applied as a spray. If, in spite of this treatment, crusts form, they should be removed with compresses of boiled water or poultices of starch or potato flour, made in a 3 per cent. solution of boric acid, and finally the following ointment applied once a day:

℞ Glycerin amyli .....1 oz.
Bicarb. of soda .....1 drm.
Cade. oil .....1 drm.
Lanoline .....1 oz.

The Medical News.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, JUNE 17, 1905.

SYPHILIS AND ITS CAUSE.—A NEW OUTLOOK.

Of the scourges of the human race, three stand out with painful prominence—Tuberculosis, Syphilis and Carcinoma.

There is little doubt that they have existed for centuries, and in spite of our fondest hopes, they will probably continue to exercise their disastrous influence for many years to come.

A beginning has, however, been made. It is no fanciful mirage of the dreamer that sees the ultimate passing of the White Plague. The *Bacillus tuberculosis* will some day be relegated to the museum shelves, as a specimen of an extinct species. It will not be in our day, nor in the generation of our children's children, but the veil of secrecy has been removed and the problems of prevention promise ultimate solution.

We are absolutely in the dark on the problem of carcinoma, but some recent light has come that offers much toward the solution of the etiological factor in syphilis. Promising contributions come from a number of sources and we are pleased to present to our readers, Page 1145, a confirmatory note from Drs. Flexner and Noguchi that makes us feel that a great step forward is now possible.

Some two or three years ago we learn that Bordet and Gengou observed in the plasma of a syphilitic chancre a spiral micro-organism, but failing to subsequently confirm their findings, nothing was said concerning it. Recently, however, as outlined by Flexner and Noguchi, a number of observers have substantiated the finding of a spiral bacterium brought into prominence by Schaudinn and Hoffmann and named by them *Spirochaeta pallida*. The corroboration by Metchnikoff and Roux, in their artificial syphilides in apes, and the present confirmation by the workers in the Rockefeller Institute, makes it appear that a new micro-organism has been found and that it is possible that it may prove to be the specific organism of syphilis.

While it is premature to maintain *Spirochaeta pallida* as the cause of syphilis it might be of interest to bring to mind that this genus offers us some interesting pathogenic species, notably the *Spirochaeta Obermeieri* of Relapsing Fever and also *Spirochaeta anserina*, an infectious disease of geese. It may be further recalled that *Spirochaeta Obermeieri* is not infectious for the lower animals with the exception of the small-nosed (*Catarrhine*) monkeys, a significant detail in view of Metchnikoff and Roux's findings.

Compared with the *Spirochaeta* of relapsing fever the present organism would seem to resemble it fairly closely—*Spirochaeta Obermeieri* varying from two to six mikrons in length and showing three to five spirals—*Spirochaeta pallida* being four to ten mikrons in length and showing three to twelve spirals. The motility in both is marked.

Inasmuch as great difficulties have been encountered in the culture of *Spirochaeta Obermeieri* the problem is by no means solved even should it be shown that the new organism bears any relation to syphilis. It may be borne in mind, however, that Koch spent years in devising a technic to cultivate the tubercle bacillus, a task not impossible now to many a comparatively untrained bacteriologist.

We hope for further observations and will await with considerable interest the results of workers in bacteriology the world over. Should the organism really have been secured, the problem of therapeutic possibilities becomes definitely promising.

THE RELATION OF THE PANCREAS TO THE METABOLISM OF FATS.

The conviction has gradually shaped itself in the minds of physiologist, pathologist, and clinician, that the digestive functions of the pancreas

represent, after all, but a small part of the physiological efficiency of this organ. Indeed, when viewed in the light of the most recent investigation, the digestive rôle of the pancreas is relatively insignificant beside its larger sphere in the metabolic events of the organism.

The researches in the internal secretion of the pancreas have occupied themselves mainly with its bearing on the metabolism of sugar. The diabetes resulting from disease or deprivation of the pancreas has been attributed to a failure in the oxidation of sugar by the body, and it has been assumed that the pancreas provides a ferment which renders this oxidation possible. Yet glycosuria is not the only way in which diabetes expresses itself. There occur in this disease more profound and comprehensive derangements in the general nutritional exchanges of the body than the mere interference with the metabolism of sugar. To what extent the pancreas is related to the oxidation of the proteids and fats is a problem that has appealed strongly to careful investigators.

For the past three years, Dr. U. Lombroso, of the Laboratory of General Pathology of the University of Turin, has been engaged in a study of various phases of the pancreatic function, and his results have appeared from time to time in a series of eighteen articles in various Italian journals. These are now for the first time summarized in *Archives Ital. de Biol.*, January 28, 1905. Representing a connected series of investigations aiming at the discovery of the obscure functions of the pancreas, this recapitulation merits careful discussion, for the results cannot fail to have an important bearing on the clinical aspects of the subject.

It was found at the outset that ligature in section of the pancreatic duct does not produce any profound interference with intestinal digestion, and hence does not seriously diminish the amount of food capable of absorption. This is explained by the fact that the saliva and the intestinal juice are both active agents in the hydrolysis of the starch, while the latter secretion has a marked lipolytic activity, although this is inferior to that of the pancreatic juice.

Although ligature of the pancreatic duct does not compromise the digestive powers in the small intestine, yet if the same pancreas whose secretion has thus been cut off or deflected from its usual destination be entirely removed, there results an immediate impairment of intestinal digestion. This is shown in the fact that the feces contain an amount of fat equal to that which has been ingested, as well as large quantities of carbohydrates and proteids. This is easily explained on the basis of an absence of the proper secretion of the pancreas from the intestine, but renders all the more puzzling the negative results following ligature of the pancreatic duct. It appears as if the presence of the pancreas in the body, whether or not its duct be tied, is an indispensable condition for the absorption of foods. This points to the pancreas as the seat of an internal secretion whose function might be compared to that of the external secretion, in maintaining the absorptive integrity of the small intestine.

Ligature of the duct of Wirsung does not cause any histological changes in the pancreas. From this fact it is concluded that under these circumstances the organ continues to elaborate its secretion, which, unable to pass out, is reabsorbed, and unfolds its activity in some mysterious way in the organism.

The most interesting stage in these investigations was reached when the author sought to discover the influence of the pancreas on the metabolism of fats. He found that the fatty stools that occur after ablation of the pancreas are not the result of an absence of lipolysis in the digestive tube, for the administration of fatty acids or of soaps to the animal leads to no diminution in the amount of fat contained in the feces. In fact, in certain dogs deprived of the pancreas, the author has observed an elimination of fats which exceeded in amount that which had been introduced by the mouth. The author believes that even in the absence of the pancreas there is an absorption of fat from the food canal, in spite of the fact that the stools show the same amount of fat as that which has been ingested. He attributes this apparent paradox to the fact that there is an excretion of fat into the lumen of the intestine. This supposition is confirmed by the discovery that if the animal be fed with fats having a low fusion-point, there will be found in the feces fats having a fusion-point which is much higher. This observation shows that the fats in the feces are not entirely derived from the food, and that although the amount of fat found in the feces may equal that taken in by the mouth, this fact does not exclude the possibility of an absorption of fat from the intestine. The fatty stools must, therefore, be attributed not to a failure in the digestion and hence in the absorption of fats, but should rather lead to the

suspicion that the absence of the pancreas in some way disturbs the fatty metabolism of the body, and consequently causes an elimination of fat into the intestinal lumen.

In animals dying at some time subsequent to removal of the pancreas, there is observed in various organs a copious infiltration of fat. This is all the more remarkable, in view of the diminution of the absorptive capacities of the intestine. Again, in animals deprived of the pancreas and then subjected to starvation, the resulting diminution of weight is attributed to a destruction of the proteids of the body, as shown by the nitrogenous content of the urine. These facts indicate to Lombroso that in animals without a pancreas, the power of burning up the fats of the body is diminished. The copious elimination of fats observed in these animals shows that the organism tries to get rid of a substance which it cannot easily utilize.

This interference with the consumption of fats which occurs after removal of the pancreas, probably also occurs in certain diseased conditions of this organ. One may here allude to that form of diabetes associated with obesity. Since in many, if not the majority of cases, diabetes is due to disease of the pancreas, particularly of the islands of Langerhans, it can readily be understood how this pathological process can interfere with two important functions of the pancreas, namely, glycolysis and adipolysis. The association of diabetes and obesity can thus be easily explained.

THE ECONOMICS OF MEDICINE.

THE *British Medical Journal* for Saturday, June 3, is devoted to a comprehensive and detailed résumé of the conditions involved in the practice of medicine throughout much of the civilized world. Of all the various phases discussed none is perhaps more really significant than that which concerns the economic aspect. With absolute unanimity reports from the various countries show a deplorable disproportion between the expenditure of time and capital and the resultant income. In most of the European countries a practitioner with an income of from $1,200 to $2,400 is considered rather fortunate.

If one were permitted to judge of the civilization of a country by the remuneration of its physicians, Denmark must carry off the palm with a yearly income for the average practitioner ranging from $1,400 to $2,800; on this basis also Spain lives up to her reputation for decadence since incomes as low as $200 are not uncommon, and of the 1,000 doctors practising in Madrid, "800 find it difficult to live."

Between these two extremes range the other countries mentioned. In Austria the average medical man is able to earn a livelihood, but cannot save anything for his old age. In Hungary matters are slightly better, the country practitioner being able to lay aside a trifle for his old age, except in the poorer mountain districts, where the physician is obliged to combine some other calling with his profession in order to live. In the towns also the fees are very low, being governed by fixed yearly sums from families to cover all necessary attendance. In Italy we find rather peculiar conditions dictated by the social restrictions of that ancient country. There is no "professional class" as we understand it. Both medicine and law are in the hands mainly of men without the distinction of birth which admits to "society," and only those of special renown can overcome this handicap. Under these circumstances it is not strange that the income of the *medici condotti* is less than $500. The Hollander who adopts the medical profession must be satisfied with about $1,200, unless he wins special eminence. The report on Turkey gives no estimate of yearly earnings, but the average fee is about 75 cents per visit, and "the conditions of general practice for foreign graduates are not attractive unless attached to some embassy, legation, hospital or board of health." Medical etiquette is practically unknown, and the national reputation for bad debts and reactionary policy is supported by individual instances. In Bulgaria the fees are low, and as in the poorer parts of Hungary, the physician adopts some additional means of livelihood. In Servia $700 appears to be an average income, and a like condition of affairs exists in Roumania.

In the British colonies on this side of the Atlantic the wage-earning capacity of the average medical man is estimated at $1,500, but it must be considered that the economic relation is practically unchanged. As a whole there is nothing in any of these reports to invalidate the assertion of universal underpayment.

Although matters in the United States are not so serious as in Spain, nevertheless the profession here is sufficiently underpaid to sympathize actively with its brethren in the Iberian peninsula, and to feel an interest in tracing the causes and effects of the existing state of affairs.

In considering the etiology of the conditions, there are certain factors which we find universally accused. Conspicuous among them are the overcrowding of the profession and the growth of the contract system.

The former is obvious in our own country, and has not as yet proved self-limiting. Possibly this defect might be in a measure remedied if the ideas of Dr. Osler were carried out, and the numberless small medical schools replaced by a more concentrated system with complete reciprocity between the various States.

The evils of the contract system are not yet so particularly menacing in the United States, although a nucleus has been imported with the foreign population. It is easily seen, however, what disasters follow its exaggerated development in Europe. In Austria, for instance, the Krankenkassen or clubs established by law, have brought the profession "to the verge of ruin." "In Holland in addition to the ordinary abuses there is a special one resulting from the existence of clubs maintained by undertakers in large towns. In Denmark the Friendly Societies, which are very numerous and strongly supported by the State, have very considerably reduced the income of the practitioner. In Germany more than a quarter of the whole population share in the benefits of free medical attendance. If, under this contract system, the doctors were adequately paid the evil would not be so pronounced, but the remuneration is invariably a mere pittance, and the work generally most exacting. For instance, in Portugal the fee for attendance is frequently as low as five or ten cents. For an illustration of the work demanded we need not go so far afield. In this country, where trade societies, by force of circumstances, generally employ one of the younger men, who is constrained by his necessities to seek such a position, the "club doctor" is subjected to endless harassing and annoying demands, summoned at midnight at the bidding of some patient suffering from a trivial ailment or mere caprice. Why not? "It doesn't cost anything."

In Belgium the benefit societies exhibit this evil in an aggravated form, and in addition we find active in that country a third element in the situation which is also prominent in our own land. We allude to the abuse of free medical aid by such persons as are abundantly able to pay for it. By the terms of the Belgian law of Public Assistance, aid is given to indigent persons by the commune in which they happen to be. In some communes leading inhabitants are not ashamed to inscribe themselves on the roll of paupers so that they may claim gratuitous attendance from the doctor who is paid a merely nominal fee by the authorities. This same disposition is manifested in America by those who, in defiance of the law, abuse the privileges of dispensary and clinic intended for the really needy. We are all familiar with the tales of the dispensary doctor who finds among his patients the lady in sealskin and diamonds and the man whose victoria awaits him a block away. This abuse, widely prevalent and shameless, works injustice both to the physician, who should be paid for attending such people, and to the actually poor, who are deprived of the time and attention intended for them.

To be sure this evil is confined to the cities, but the rural districts have their own difficulties for the practitioner, in their tendency to too great a reliance upon household remedies, and a susceptibility to the alluring devices of the patent medicine even greater than that of their fellows in the city.

In close alliance with the patent medicine scourge we find a vast army of quacks of various persuasions, preying upon the credulity of an unenlightened public, ensnared by unlimited promises and spectacular methods. The money which is annually diverted to the coffers of these unscrupulous traffickers would, if directed to its legitimate channel, raise the average of the physician's income to a figure in keeping with the dignity and arduousness of his profession. Under the present circumstances, however, the temptations to depart for the sake of gain from the straight and narrow path of professional probity are such that the ranks of the quacks are materially recruited from among the weaker brethren of the profession itself. Thus a vicious circle is established in which quackery alternately plays the part of cause and effect.

Finally, it has become a matter of proverbial allusion that "the doctor is the last man paid," and any professional information which can be casually extracted in conversation either in person or by telephone, is looked upon as so much free loot.

Thus we see some of the causes which produce, in this country and elsewhere, the condition reported. The tracing out of the results of this

condition would imply more space than is at our disposal. Suffice it to say that in their ultimate consequences they must entail disaster not only upon the profession, but upon the public at large.

ECHOES AND NEWS.

NEW YORK.

Physician Delegate to Peace Conference.—Dr. Frederic Griffith has been appointed a member of the International Peace Conference, to be held in Lucerne, Switzerland. Dr. Griffith attends as the acredited agent of the Pennsylvania State Society.

Death from Yellow Fever.—Frank O'Leary, of Buffalo, announced in last week's NEWS as a suspect, died at the Government hospital, on Swinbourne Island, last week, of yellow fever. He was taken ill on board the steamer Seguranca, while on the way from Colon to this city, and was transferred to the hospital upon the steamer's arrival, June 7.

Flower Mission Open for the Season.—The New York Flower Mission, at No. 104 East Twentieth Street, is open every Monday and Thursday (for the thirty-fifth season) for the reception of flowers, fruit, and delicacies for hospital and tenement house sick. An increased supply of fresh flowers, especially fragrant ones, is greatly needed, and as the express companies bring them free, it is earnestly hoped that people in the country will remember the distress of their poorer city neighbors who are sick. Women staying in town are requested to assist at the rooms in tying up bouquets and distributing them in hospitals.

Hospital Managers Named.—Governor Higgins, prior to his departure for Duluth, decided upon the appointments of managers of the State hospitals for the insane, which, under the Allds law, passed by the legislature recently, succeeds the board of visitation of these institutions. The restoration of boards of managers marks the culmination of the fight of the charitable interests of the State against the Odell legislation of 1902, which put them out of office and centralized all power over the insane hospitals in the State Lunacy Commission. The Allds law provides for a cooperation in supervision and management of these institutions between these boards and the Lunacy Commssion, the power of appointment of superintendents and stewards and other matters of administration being vested in boards of managers, subject to the confirmation of the Lunacy Commission. The appointments are as follows: Central Islip—Edmond J. Butler, Mrs. Augustus Floyd, Henry P. Hollister, Mrs. William Robison, Leopold Sondheim, William M. V. Hoffman, James MacGregor Smith.

Kings Park—John Thatcher, Julian D. Fairchild, the Hon. John Rooney, Mrs. M. S. Ackerly, Mrs. F. B. Pratt, Walter Jennings, Silas B. Dutcher.

Long Island—Miss Louisa Mann Wingate, the Rev. William J. White, Mrs. John H. Burtis, Norman S. Dike, the Hon. Charles A. Schieren, Alexander E. Orr.

Manhattan—Mrs. Francis Kinnicutt, Isaac N. Seligman, Mrs. Grace Gillette Bird, Whitman V. White, Thomas M. Mulry, Cleveland H. Dodge, the Hon. Seth Low.

In the Middletown board are the names of Mrs. Anson R. Flower and Mrs. Robert Sturgis, of New York.

Stony Wold Sanatorium.—As the fourth annual report of the Stony Wold Sanatorium, for the cure of consumptives, covers the first full years with the plant in working order, it is especially indicative of the work, writes the *Evening Post*, that can be carried on there in the future, when the most pressing needs of the sanatorium have been provided for. The reception of patients was formally begun on October 1, 1903. Since that date one hundred and thirty-one women, girls and children have been cared for. Of these six did not improve while at the sanatorium, and returned home to die. On January 1, 1905, fifty-five patients were under treatment. As far as the records show, sixty-eight of those discharged were sufficiently recovered to resume their places in their homes, or as wage-earners. Two have been received at other sanatoriums. In regard to the care of the patients, the report reads: It is impossible to predict the progress of a given case. The constitution and reparative powers are often so undermined that, in spite of the utmost caution, the patient retrogrades because there is no physical foundation on which to build. If it were possible to effect in three months what it usually takes six months or a year to accomplish, the total number of cases treated would be much larger. Our success must always be conditioned on the stage of the disease. There is another reason why tuberculosis is difficult to control. It is an established fact that it is communicable, and out of the stress that has been laid on this point has been wrought a hardship for the patient. Families endeavor to conceal the fact that one of their number is a victim of the malady, because, as a result of the urgency of the message of science, the consumptive believes that a ban is placed upon him, and that he is henceforth designated a menace to the community. It is only the ignorant and careless who are in danger in public places. Beside its value for care and cure of tuberculosis patients, Stony Wold might appropriately be called a training school. As the report points out, "it is no small thing to have dismissed during the year seventy missionaries of hygiene and healthful methods of living. The influence of that member of a family who, as an inmate of Stony Wold, has learned to place the proper value on air and sunlight, on a wholesome diet, on cleanly habits, changes that home from a danger spot to a center from which emanates that knowledge which is of supreme importance in helping to solve a problem of vast magnitude."

The needs of Stony Wold are still many, as enumerated in the report: Foremost among our needs is a cow barn and cows, so that we may have pure milk. At present we procure the milk and cream used from a local dealer at 5½ cents per quart. This price is reasonable, and we do not expect to reduce it greatly, even with our own stock, but it is universally agreed at the present time that sanitary buildings, clean cows, and careful service are necessary for the production of wholesome milk, a most important factor in the diet of the tuberculous patient. We use, on an average, one hundred quarts a day, and need fully twenty quarts more a day. In December last our records show a consumption of 3,286 quarts for the month. A great need at the present time is that of a new engine for our naphtha launch. The hull of the boat is perfectly sound, but the engine in it is worn out. This had been in use several years when the launch was given to us. The boat is needed in order to enable us to meet passengers who reach Kushaqua on the Delaware and Hudson

railroad, which runs through our property on the opposite side of the lake. It is also needed in order to afford recreation for patients. Seven dollars a week will keep a patient at Stony Wold, including transportation, special diet, and all other extras. Children sent there are regularly taught, as though they were in one of the public schools.

Hospital List Announced.—The authorities of the College of Physicians and Surgeons, the medical department of Columbia University, to-day made public the complete list of seniors who have obtained appointments at hospitals in the spring competitive examinations. Out of a class numbering about one hundred and eighty, when it graduates next Wednesday, more than one hundred men, or about sixty per cent., have "made" hospitals. The list includes not only every important local institution, but a great many out-of-town hospitals as well. The national character of the school is shown by the fact that Columbia, Yale, Harvard, Princeton, Dartmouth, New York University, the Massachusetts Agricultural College, the New York City College, Rutgers, and the Kentucky State College are a few of the institutions of learning represented in the list, which is as follows:

Bellevue Hospital, Fourth Division—Ralph Ryan, Yale; J. C. Mabey, George B. Emory, Harvard.

Bellevue Hospital, P. and S. Division—Davenport White, Yale; Everett M. Howks, Columbia; Edgar B. Armstrong, Gordon Lindsay, Columbia; Charles J. Harbeck, Harvard; Murney E. Lewis; alternate, John F. Bourke.

Beth Israel Hospital—Albert C. Margulies, Samuel J. Goldfarb; externes, Julius L. Moguleoko, Martin Kutscher.

Brooklyn Hospital—John A. Bennett, William S. Smith, R. N. Prentiss.

Bushwick Hospital, Brooklyn—Henry M. Friedman.

City Hospital, Blackwell's Island—Charles S. Boyd, Harrison S. Martland, Western Maryland College; P. Clinton Pumyea, Princeton; Joseph D. Slack.

Columbia Hospital—Eugene P. Schaefer, John D. Gaskins.

Englewood Hospital, Englewood, N. J.—Philip E. Brundage, Princeton.

French Hospital—Malcolm E. Smith, Charles Krumwiede, Jr.; Lester F. Meloney; alternate, V. James Orlando.

General Memorial Hospital—Robert H. Hutchinson, Jr.

German Hospital—Reuben Ottenberg, Columbia; Alfred H. Nochren, City College; Alfred M. Hellman, Columbia; substitute, David J. Kaliski.

German Hospital, Brooklyn—Julius J. Valentine.

Hale Hospital, Haverhill, Mass.—Stafford B. Smith.

Harlem Hospital—Mason D. Bryant.

Hospital for the Ruptured and Crippled—Pietro Fiaschi.

Hudson Street Hospital—George A. Merrill, City College; Charles T. Leslie, Massachusetts Agricultural College; M. D. Bryant.

Jamaica Hospital, Jamaica, L. I.—Martin T. Powers, Louis V. Clarke.

J. Hood Wright Memorial Hospital—Frank D. Solley, Robert Cordner, College of Pharmacy; alternate, Joseph Z. McDermott.

Kings County Hospital—Henry F. Graham, Allen C. Hutcheson, University of Virginia.

Lincoln Hospital—Walter R. Terry, Wesleyan; Robert A. Adams, City College.

Methodist Episcopal Hospital, Brooklyn—Henry F. Grahamp, A. C. Hutcheson.

Monmouth Memorial Hospital, Long Branch, N. J.—J. Z. McDermott.

Mt. Sinai Hospital—Internes, Harold M. Hays, Columbia; Harold Neuhof, John C. A. Gerster, Columbia; A. R. Chamberlain, Yale; L. G. Kempfer, Walter J. Heiman, Columbia; Robert W. Pettit, Rutgers; Jacob Wisansky, City College; externes, Isidore Rubin, Abraham E. Jaffin, Abraham Hyman; provisional, Max Schayer.

Newark City Hospital, Newark, N. J.—Joseph J. Smith; alternate, Samuel W. Dodd, Princeton.

New York Hospital—Norman S. Shenstone, Toronto University; George F. Cottle, City College; Frederick H. Bartlett, Harvard; Walter B. Mount, Princeton.

Norwegian Hospital, Brooklyn—Hans G. Baumgard, New York University; Jefferson B. Latta.

Orange Memorial Hospital, Orange, N. J.—Charles L. Allers.

Paterson General Hospital, Paterson, N. J.—Orville R. Hagen.

Post Graduate Hospital—Irving W. Voorhees, Princeton.

Roosevelt Hospital—Kirby . Dwight, Princeton; Clarence W. Bartow, Columbia; Edward A. Park, Yale; Marius E. Johnston, Kentucky State College; Raynam Townshend, Yale; Robert M. Brown, Harvard; Edward M. Cole, Jr., Columbia.

St. Barnabas' Hospital, Newark, N. J.—Ross E. Black, Harold W. Wright.

St. Catherine's Hospital, Brooklyn—Sylvester E. Ryan.

St. Francis Hospital—Charles J. Prescott, Dartmouth; W. W. St. John, Conrad F. Kurpeck, St. Peter's College; Francis M. Dickinson, Yale.

St. John's Riverside Hospital, Yonkers, N. Y.—Harry H. Stevens, College of Pharmacy; Henry E. Ricketts.

St. Joseph's Hospital, Paterson, N. J.—William J. Tiffany, Frank Y. Neer.

St. Luke's Hospital—Harry S. Holland, Columbia; P. H. Hayes, Milne B. Swift, Arthur L. Hutton.

St. Mary's Hospital, Brooklyn—Eugene J. Cronin, Leo A. Parker, Rock Hill College; Francis B. Hart.

St. Mary's Hospital, Rochester, N. Y.—George C. Driscoll.

St. Vincent's Hospital—William J. O'Leary, John S. Brady, Georgetown; Charles M. Quinn, Arthur F. McDonald, David Corcoran.

Swedish Hospital, Brooklyn—H. F. Brunning.

Sydenham Hospital—Avrum H. Zeller; alternates, Max Volk, Louis Cohen.

Williamsburgh Hospital—Thomas C. McCoy; alternate, Leo Wertheim.

PHILADELPHIA.

Prison Inspectors Elected.—The members of the Board of Prison Inspectors, to serve for one year from the first Monday in July, were elected by the Board of Judges. The only new member is Dr. J. M. Reeves, of 1525 Spruce Street, who will take the place of Dr. Morris S. French, the latter having removed to Virginia.

Successful Lawn Fete.—The recent lawn festival and bazaar, held at the Lindenhurst, the country seat of John Wanamaker, for the benefit of the Jefferson Maternity, must be considered a success

financially as well as socially. After making up the accounts, the managers of the affair are able to turn over to the treasurer of the Maternity $3,000.

Rabies Prevalent West of the Schuylkill.—The residents of the district lying west of the Schuylkill River are very much exercised over the prevalence of hydrophobia. It is stated that since the first of May, 1905, more than fifty dogs have shown symptoms of the disease. A number of animals have been and are being treated with Pasteur's antitoxin at the Veterinary Hospital of the University.

Doctors of 1880 Hold Reunion.—The annual reunion and banquet of the medical class of 1880 of the University of Pennsylvania was held at the Bellevue-Stratford last Tuesday night. Of the 116 graduates 21 have died and only 32 were present. Dr. Edmund W. Holmes was toastmaster. Toasts were responded to by Dr. Joseph S. Gibb, Professor James Tyson, Professor B. Alexander Randall, Dr. Lewis H. Taylor, Dr. Henry R. Price, Dr. Charles A. Currie and Dr. Bernard Berens.

Philadelphia Pathological Society.—At the regular meeting of this society, held June 8, 1905, the scientific program was opened by Drs. J. D. Steele and W. R. Butt, who read a paper on "The Tests for Occult Blood in the Feces." The next paper was read by Drs. D. L. Edsall and C. A. Fife, on the "Influence of the X-ray on the Metabolism in Gout." Dr. D. L. Edsall also read a paper on "Milky Nonfatty Effusion in Hodgkin's Disease." Dr. W. E. Robertson showed specimens from the same case. Dr. D. Riesman showed "Specimens from a Case of Hemorrhagic Infiltration of the Kidneys in the Newborn." The last paper was read by Dr. G. P. Müller, on "Sarcoma of a Metatarsal Bone."

Philadelphia Academy of Surgery.—This society met June 5, and the following papers were presented: By Dr. John H. Jackson, "A Case of Fracture, Illustrating the Use of Halsted's Splint." He showed a patient suffering with a fracture of the tibia. This paper was discussed by Drs. Harte and Roberts. Dr. James Young reported "A Case of Complete Functional Laminectomy for Fracture of the Vertebra." He showed a patient who recovered from paralysis due to dislocation of the shoulder at birth. Dr. John B. Deaver read a report of "The Operations Performed Before the Students at the German Hospital During the Season 1904 and 1905." He laid particular stress on the technic of the operations and the methods employed by the nurses. Dr. George M. Dorrance, by invitation, reported "A Spiral Fracture of the Humerus, Caused by Jiu Jitsu." He showed the patient.

Residents Object to Placing Consumptive Sanitarium Near Their Homes.—During the latter part of last week Judge Beitler began the hearing of the complaining residents of North Mt. Airy against Mrs. Margaret C. O'Hara's sanitarium for the open-air treatment of tuberculosis. The sanitarium consists of a number of canvas tents, which are occupied by tuberculous patients. The residents complain that the patients can be heard coughing and expectorating, and that the management shows an utter lack of propriety in allowing the patients to go about the tents clad in night robes only. The operation of the laundry day and night, the going to and fro of many nurses and servants, and the constant arrival and departure of milk wagons, make the sanitarium appear more like a busy industrial establishment rather than a hospital, and since the neighborhood is strictly residential, the sanitarium is objectionable not only for the reasons given, but also because it is a menace to the health of the residents.

Inspection of Public Schools.—According to the reports submitted to the Board of Health, the inspection of the public schools by physicians has resulted in much good for both the public and the pupils. The medical examiners have made 26,131 visits, and have examined 111,100 children during the first year. Of the last mentioned number 18,528 had been set aside by the principals as suspicious cases of probable transmissible disease. Because of disease 4,124 pupils were excluded from school, and 901 unvaccinated pupils were detected and vaccination enforced in every instance. The most common disease found was defective vision. Many of the children, who were thought to be stupid and backward, and who could not see words or figures on the blackboard, when given suitable glasses, were found to be as intelligent as most children of their class. This work of inspection was first undertaken one year ago, at the solicitation and under the supervision of Dr. Edward Martin, Director of Public Health and Charities.

Health Commissioner Appointed.—Dr. Samuel C. Dixon, president of the Academy of Natural Sciences, was appointed Commissioner of Health by Governor Pennypacker. The position was created by the last legislature, which body passed a bill providing for a Department of Health, to take the place of the State Board of Health. The Department of Health, over which Dr. Dixon is to preside, consists of an advisory board of six members, four of whom are to be physicians. They are not salaried, but may collect expenses incurred while discharging their duties of office. According to the provisions, the State is to be divided into ten districts, each of which is to be in charge of a physician, whose salary shall be $2,500. The commissioner is invested with authority to issue subpœnas to secure the attendance of witnesses, and to issue warrants for the apprehenion of violators of the health law. He may revoke or modify any regulation, by-law or ordinance of a local board of health, which regulation, by-law or ordinance may effect the public health beyond the territory over which the local board has jurisdiction.

CHICAGO.

Election of Dr. Norbury.—Dr. Frank P. Norbury, of Jacksonville, Ill., has been elected Professor of Nervous and Mental Diseases in the Keokuk Medical College.

Bill for Nurses Vetoed.—The bill for an act to establish a State board of examiners for registered nurses was recently vetoed by the Governor. An analysis of the veto shows that the bill conferred special privileges on graduates of certain training schools, and that hardships were imposed on many well-qualified and experienced nurses now in practice.

Officers of Physicians' Club.—The annual meeting of the club was held May 23, when the following officers were elected for the ensuing year: Secretary, Dr. Chas. L. Mix. Drs. Clarence A. Earle, Henry F. Lewis and Arthur M. Corwin were elected Directors. The policy of holding irregular meetings will be continued. A chairman is elected at each meeting.

Commencement Exercises of the College of Physicians and Surgeons.—The twenty-third annual commencement exercises of this institution were held June 6, when a class of 213 was graduated, 13

of whom were women. Four of these appear on the honor list. The doctorate address was delivered by Rev. William A. Quayle, and the degrees were conferred by Prof. T. J. Burrill, vice-president of the University of Illinois.

Changes at Rush Medical College.—An official statement was recently issued concerning the work of Dr. Nicholas Senn and Dr. John B. Murphy, in this institution. The statement says: "Dr. Nicholas Senn remains at the head of the surgical department of Rush Medical College, and will have entire charge of the clinical teaching of surgery during the fall quarter. Dr. Senn has also been elected Professor of Surgery in the University of Chicago, and will lecture to the medical class. Dr. John B. Murphy has been elected Professor of Surgery in Rush Medical College, and, with Dr. Arthur Dean Bevan, will have charge of the administrative details of the department of surgery and will conduct the clinical teaching of surgery during the remainder of the year."

CANADA.

News Items.—Dr. J. Algernon Temple, of Toronto, formerly Dean of Trinity Medical College, has had conferred upon him the honorary title of LL.D. by the University of Toronto.

Dr. Lewellys Francis Barker, of Baltimore, received the hnorary degree of M.D. at the convocation exercises of Toronto University, on May 9.

The Hon. Dr. Robert Allan Pyne, Minister of Education for the Province of Ontario and Registrar of the Ontario Medical Council, has had conferred on him LL.D. by the University of Toronto.

The Medical Department of Queen's University, Kingston, Ont., will seek financial aid from the Ontario Government in the autumn, when a deputation from that university will wait upon the Government.

Dr. Ernest K. Cullen, house surgeon in the Toronto General Hospital, and a brother of Dr. Thos. S. Cullen, of Baltimore, has been appointed a Fellow in Pathology at Johns Hopkins Hospital University.

Hospital Superintendent Banqueted.—Dr. Charles O'Reilly, for over twenty-nine years medical superintendent of the Toronto General Hospital, having resigned from that position, was, on the evening of June 10, banqueted by the profession of Toronto and surrounding country. The occasion was a splendid testimonial to the capability of a man who had so long administered the affairs of the largest hospital in Canada. A large number of Dr. O'Reilly's house surgeons of former years were present, Drs. Barker and Cullen coming up from Baltimore. Every section of the province of Ontario was represented. Dr. John S. King, Toronto, gave some very interesting and funny citations of the time when he was Dr. O'Reilly's first house surgeon in 1876, and the only one. Among others who spoke were Drs. J. F. W. Ross, Dr. Thos. S. Cullen, Dr. L. F. Barker, Dr. Breffney O'Reilly (son), Dr. Gerald O'Reilly (brother), Guelph, and Dr. J. Algernon Temple and Dr. Allen Baines, the former of whom proposed the toasts to Dr. O'Reilly, recalling the time when they were students at McGill University, forty years ago, the latter (Dr. Baines) reading an address and making a presentation of pieces of solid silver plate. Dr. O'Reilly replied with considerable feeling to the large gathering, and gave some decidedly interesting reminiscences of his sojourn in the Toronto General Hospital. Dr. Adam H. Wright presided in his usual happy manner. Dr. O'Reilly, accompanied by Mrs. O'Reilly, his son Dr. Breffney O'Reilly, and Dr. Gerald O'Reilly, of Guelph, sail on July 1 for Ireland, and will spend a year or two traveling in the old land.

Ontario Medical Association.—The twenty-fourth annual meeting of the Ontario Medical Association convened in Toronto on June 6, and continued for the two following days, the meeting proving the second largest and one of the best in the history of the Association. It convened under the Presidency of Dr. William Burt, of Paris, the Secretary being Dr. Charles P. Lusk, of Toronto. Dr. Charles A. Hodgetts, Secretary of the Provincial Board of Health, contributed a paper setting forth the advisability and desirability of the Ontario Government establishing a separate Department of Public Health, which met with the approval of the Association, and at a later date an influential committee will wait upon Premier Whitney, to urge this matter upon his Government. In the annual Presidential address, Dr. Burt urges the establishment of schools for research work, and called upon the financial men of the province to contribute in this direction. Dr. R. W. Bruce Smith, Inspector of Public Charities and Hospitals, read a highly important paper, entitled "Preludes to Insanity," which elicited a prolonged discussion. Dr. Herbert A. Bruce, of Toronto, recited his experience with appendicitis for the last eight years, recording 400 cases. Dr. Bruce advocates consultation with a surgeon in all cases as soon as the diagnosis is determined. Dr. A. J. Ochsner, of Chicago, delivered the address in surgery, taking for his subject, "Surgery of the Stomach from the Standpoint of the Physician." Dr. J. F. W. Ross, of Toronto, dealt with "Operations for the Immediate Repair of the Genital Lesions of Childbirth." Dr. Hadley Williams, of London, contributed a paper on "Stone in the Kidney." Dr. H. B. Anderson, of Toronto, took for the subject of his paper, "Diseases of the Myocardium from a Clinical Standpoint." Professor McPhedran presented a practical and interesting paper on "Evidences Resulting from Functional Disturbances of Digestion." Dr. S. M. Hay, of Toronto, read a paper on "A Critical Review of the Operations for Suspension of the Uterus," which evoked considerable discussion. Dr. Graham Chambers, of Toronto, contributed a paper having for its title "Remarks on the Cutaneous Affections Observed in Hysterical Patients." Others who contributed papers were: Drs. Price Brown, of Toronto; James Newell, of Watford, Ont.; T. K. Holmes, of Chatham, K. C. McIlwaith, of Toronto, F. W. Marlow, of Toronto; Edward Ryan, of Kingston, who showed several interesting pathological specimens. Dr. Henry Hewitt, Guelph, Ont., gave his experience with the surgical treatment of chronic nephritis. Dr. W. B. Pritchard, of New York, delivered the address in medicine, taking for his subject "The American Disease—An Interpretation." This provoked an animated discussion. Dr. Ingersoll Olmsted, of Hamilton, read a carefully prepared paper on "Resection of the Splenic Flexure of the Colon—Malignant Disease—with Exhibition of Patient and Specimen." Dr. D. J. Gibb Wishart, of Toronto, read a paper on the faucial and lingual tonsils. Still other papers were contributed by Dr. R. D. Rudolf, of Toronto; Dr. C. B. Shuttleworth, of Toronto; Dr. H. H. Oldright, of St. Catherines; Dr. G. H. Burnham, of Toronto; Dr. Goldwin Howland, of Toronto; Dr. C. J. C. O. Hastings, of Toronto, and W. B. Thistle, of Toronto, the latter on "The Treatment of Intestinal Lesions in Typhoid Fever," in which

the writer advocated his eliminative treatment, and stated that the last 100 cases under his and Dr. W. P. Craven's care, in the Toronto General Hospital, had resulted in only one death by this form of treatment. Dr. C. D. Parfitt dealt with tuberculosis, Dr. Paul Scott, Toronto, and Dr. T. Shaw Webster following with carefully prepared papers. Dr. Campbell Meyers read a notable paper advocating wards in general hospitals for acute nervous and mental diseases, which resulted in the appointment of a committee to wait upon the Government in the matter. The next place of meeting will be in Toronto, with Dr. George A. Bingham as President, Dr. Charles P. Lusk, Secretary, and Dr. Fred. Fenton, Treasurer, both of Toronto. Altogether the meeting was a pronounced success, and will result in a great deal of good to the profession of the province.

GENERAL.

More Fever Cases in Canal Zone.—Additional cases of yellow fever in the canal zone have been reported to the War Department during the week.

New Orange Hospital.—The first ward in the new Italian Roman Catholic Hospital here was opened on June 13. It will be called the ward of St. Anthony. The hospital itself will be called the Hospital of the Immaculate Conception. There are four separate buildings on Center and Hurlbut streets.

Mosquitoes in China.—In the latest (sixty-sixth and sixty-seventh) issues of Medical Reports of the Chinese Imperial Maritime Customs, two observers throw light on the connection between mosquitoes and malaria. Thus, at Chung-king, fever prevails most in the early spring, when there are no mosquitoes to be seen. The town is normally, also, so free from the insect that in many places the net is not required. When the streets are flushed by early rain, there is very little fever. At the Haihow harbor light-station, malaria of a quotidian type is serious. No places were found where mosquito larvæ were breeding or could breed, but *Anopheles* were plentiful in European and native quarters. Larvæ were numerously found in rice fields a quarter of a mile distant, obviously carried thither by the prevailing winds. "The officers in charge (of the station) made mighty war on those mosquitoes found within doors, and, whether due to this crusade or not, the members of the light staff have ceased developing the malarial paroxysms."

Annual Meeting of the American Medical Society for the Study of Inebriety and Alcohol.—The thirty-fourth annual meeting of this society will be held in the hall of the Atkinson School Building, Portland, Ore., July 12 and 13, 1905, beginning at 9 A.M. The President's address, by Prof. W. S. Hall, of the Northwestern University of Chicago, Ill., will be a review of the progress of the study of the action of alcohol during the year. The committee on the Influence of Alcohol in Literature and History, will present a report by its president, Dr. John Madden. The committee on Heredity as a Cause in the Disease of Drug and Spirit Taking, will report, and the committee on Patent Medicines, will also submit a statement of their work. Papers will be read by Drs. MacNicholl, Steward and others. The second session, Thursday, July 13, at 9 A.M., will be a memorial service to the memory of the late Dr. N. S. Davis, and a continuation of a similar meeting before the American Medical Association. Addresses are expected from Drs. Hall, Webster, Crothers, Kellogg, Hollister and remarks by ex-Presidents Musser, Billings, Mathews and President McMurty, of the American Medical Association. The public are cordially invited to be present.

Some Japanese Hygiene.—The conspectus of Japanese social life, given in the "Mouvement de la Population de l'Empire du Japon" for 1901, is interesting to the student of public hygiene and law, because of the minute detail of births, marriages, divorce, disease, foundling, etc., recorded in every province. The peculiar customs of adoption, which require so much space in the new codes in treatment of the many cases arising in practice, make the subject complex, while decidedly interesting to those who realize the composition of a Japanese family. Communal in idea, origin, and procedure, the family in Japan is less an organism held together by blood ties than a legal entity. Many of the so-called "divorces" are, in the light of occidental ideas and habits, nothing more than the breaking of engagements, and not rupture of the marriage tie; as, for example, when a boy, babe or youth, adopted to marry the house-head's daughter and take his name, fails to become a husband, the law of Japan registers this failure as a divorce. In the very minute tables of decease by disease, the place, sex, cause, and age are given, with recapitulations. Only 260 persons were declared and registered as foundlings in 1901; 91 being babes under twelve months. Of persons naturalized in 1901 there were 27. Of lepers, 2,021 died in 1901; of syphilities, 9,198; of plague patients, 3; of cholera patients, 484. The most disabling disease, affecting the nerves and circulation (from 70 to 84 per cent. of Oyama's army, according to Miss McGee) is *kakké*, or beriberi; but the tables show it to be one of the least fatal.

The Housefly in Current Literature.—A recent issue of *Collier's* contains the following pronouncement anent the housefly. The dissemination of this type of information to the public at large is highly desirable: "Now that the housefly is making his appearance, and is likely to remain some months, it becomes our duty to observe some things to his discredit. He is a dirty beast, and danger lurks in him. Once before we wrote of him, at that time frivolously. But who can deny that he sits upon a barrel of swill, until the fancy takes him to try a sugar-bowl or baby's nose? The germ theory sometimes seems elaborate, in these days, when some are found to prophesy even against the tooth-brush, and against the postman's bag. Still, it remains impossible to become scientific without going crazy. In attacking the fly we are safely moderate. He causes more disease in a week than aniline dyes in a month. He is more dangerous than formaldehyde in milk. The above are medical opinions which we eagerly accept. Charity covers a multitude of sins. It does not cover flies. These ranging and obscene animals should die. The only difficulty lies in killing them. Screens on kitchen doors and careful cooks may do more for health than medicine or a quiet conscience. We are not lost to all sentiments of mercy. Like the poet, we can pour regretful tenderness over the translucent small wings crushed accidentally in a book, 'pure relics of the blameless life.' From the fly's point of view he makes the most of things. Who would kill even a mosquito for doing his best? But man is devoted to himself, and these disease-bearing denizens of the air are fatal to him and his young offspring."

Sioux Valley Medical Association.—The ninth annual session of this association was held in Fort Dodge, Iowa, June 14 and 15. The following interesting program was given: "President's Address," by Dr. M. Sullivan, of Adrian, Minn.; "Cases in Practice with Unusual Pathology," by Dr. Edw. Hornibrook, of

Cherokee; "The Clinical Variations of the Vermiform Appendix with Special Reference to its Development," by Dr. J. A. Dales, of Sioux City; "Talipes Equino Varus," by Dr. P. E. Sawyer, of Sioux City; "Wear and Care of the Nervous System," by Dr. Leo M. Crafts, of Minneapolis; "The Influence of Massage, More Especially as it Effects the Nervous System," by Dr. M. L. Voldeng, of Cherokee; "Catarrhal Deafness: Its Prevention," by Dr. F. Roost, of Sioux City; "Eye Symptoms in Medical Diagnosis," by Dr. F. E. Franchere, of Sioux City; "The Pharyngeal Tonsil as a Causative Factor in Systemic Disturbances," by Dr. W. J. Bussey, of Sioux City; "Influenza," by Dr. C. H. Hall, of Cherokee, Iowa; "Auto Serotherapy," by Dr. G. S. Browning, of Sioux City; "Treatment of Acidosic and Sugar States from Traumatism," by Dr. Geo. F. Butler, of Chicago; "Gastroptosis," by Dr. L. W. Littig, of Iowa City, Ia.; "The Physician's Duty to the Patient in Tuberculosis," by Dr. R. E. Conniff, of Sioux City; "Infection of the Ovaries and Tubes and Natural Resistance to Invasion," by Dr. J. R. Brady, of Sioux City; "The Treatment of Diffuse Septic Peritonitis," by Dr. V. B. Knott, of Sioux City; "Anatomic Factors to be Considered in Prostatectomy," by Dr. Wm. Jepson, of Sioux City; "Intestinal Perforation in Typhoid Fever; Report of Cases," by Dr. W. Courtney, of Brainerd, Minn; "Intestinal Obstruction," by Dr. J. R. Guthrie, of Dubuque; "Surgical Intervention in Stomach Troubles," by Dr. E. E. Dorr, of Des Moines; "Similar Diagnostic Points Occurring in Acute Appendicitis and Diseases of the Biliary Tract," by Dr. A. M. Pond, of Webster City, Iowa; "The Management of Appendicitis by the General Practitioner," by Dr. W. E. Sanders, of Alta, Iowa; "Delusions," by Dr. A. Anderson, of Estherville, Iowa; "Gun Shot Injuries of the Stomach," by Dr. J. N. Warren, of Sioux City.

Missouri Valley Excursion to Portland.—A delightful outing in the wonderland of America, is the pleasant anticipation of those who have joined the Missouri Valley excursion party to Yellowstone Park, and the meeting of the American Medical Association in Portland. A special train, via the Burlington route and Northern Pacific, will leave Kansas City on Thursday evening, June 29, at 6.10 P.M., St. Joseph 8.25 P.M., Omaha 11.10 P.M., and Lincoln 1.20 A.M. Friday, arriving in Yellowstone Park on Saturday morning, July 1, where it will be met by the park coaches, making a week's tour of the park. One day will be spent in Seattle and a part of a day in Tacoma, where the party will be entertained by the local societies, arriving in Portland on Sunday evening, July 9, in advance of the large parties from the East. All who have attended these meetings will appreciate the advantage of arriving early and being settled in their hotels before the rush. *Party No. 2.*—Another train will leave Kansas City, Lincoln and intermediate points via the Burlington on the evening of July 6, for those who wish to go direct to Portland. Stopovers in Seattle, Tacoma and other points will be allowed. Everyone is welcome, doctors, their wives and families and their friends, whether they are members of our society or not. *Expenses.*—Round trip rates from Missouri River points to Portland, $45. The expense for the week in Yellowstone Park, $45.90, including board and transportation; or $38.30 via the Permanent Camp Co., which is said by many to be the superior route, and the most enjoyable. The secretary is investigating its merits. Double berths in standard sleeper through to Portland, $11.50; tourist sleeper, $5.75.

Return Trip.—One must decide on the *return* trip *before* starting; there are a number of routes which may be selected without extra cost. For example, one may return through Salt Lake, Colorado Springs, Manitou and Denver, with stopovers as desired, within the limit of ninety days. For $4 extra one may return over the Northern Pacific, Great Northern or Canadian Pacific through St. Paul. For $11 additional, one may return through San Francisco and Los Angeles via the Southern Pacific, or over the Santa Fe, through the Grand cañon of Arizona. The trip is one of the most wonderful in the great Southwest, and a magnificent new hotel has just been completed for the care of visitors. Side trip from Williams is but $6.50 for round trip. Full information on application to any Santa Fé agent. Pullman reservations should be made at once through the secretary, as the number in the party will be necessarily limited. Chas. Wood Fassett, Secretary, St. Joseph, Mo.

Fifteenth International Medical Congress.—Anticipating that a large number of American physicians will attend the Fifteenth International Medical Congress, to be held in Lisbon, Portugal, April 19 to 26, 1906, the undersigned has completed arrangements for the chartering of a first-class vessel, upon which the American delegation may sail as one party. In this way better accommodations can be secured at a more reasonable price; the social features in the trip will be enhanced and each individual surrounded by those who are personally congenial. Additional security and consequently added pleasure will be obtained as the party will be in charge of a traveling conductor, who is thoroughly conversant with the language and customs of the countries to be visited en route. As there will doubtless be some diversion to the choice of the routes, depending on individual inclination and previous opportunities for foreign travel, a number of returning routes have been selected, and the initeraries of which, although separate from the journey proper, have been aranged so that the principal points may be visited together. Those who desire may include a Mediterranean trip. Excursions to Madrid, Corunna, Vigo, Oporti, the Escorial, Toledo, Seville and Cordova have been arranged, as well as an opportunity to return leisurely through Italy, France and Great Britain. Hotel reservations for the party have also been arranged for in the best hostelries of Lisbon, and in addition a number of floating hotels will be anchored in the Tagus during the entire session of the Congress, thus enabling visitors who desire to enjoy all the comforts of a superb hotel on the water. The round-trip rates from New York, will run from $275 up, according to the tour selected, including all expenses. Itineraries of the various tours are being prepared and will soon be ready for distribution. It is important that all who contemplate taking this trip should register at once so that no disappointment in hotel reservation may be experienced. The final arrangements will, as heretofore, be in the hands of the well-known conductors, Thos. Cook & Sons, which insures perfect and complete service, thus relieving the passenger from all annoying details incident to the voyage. Those delegates who attended the last Congress in Madrid, sailing from New York on the "Princess Irene," will remember the excellent service afforded them. Dr. John H. Musser, Philadelphia, is chairman of the National American Committee, and Dr. Ramon Guiteras, 75 West Fifty-fifth Street, New York City, is the secretary, to whom all applications for membership and communications in regard to the presentation of papers should be addressed. Further information, reservations and copies of itinerary may be obtained by addressing the last named undersigned. Lewis S. McMurtry, M.D., Louisville; Nicholas Senn,

M.D., Chicago; J. D. Griffith, M.D., Kansas City, Mo.; W. F. Southard, M.D., San Francisco; Frank P. Norbury, M.D., Jacksonville, Ill.; Jas. E. Moore, M.D., Minneapolis, Minn.; R. T. Morris, M.D., New York; A. Vander Veer, M.D., Albany, N. Y.; Jos. M. Mathews, M.D., Louisville, Ky.; J. B. Murphy, M.D., Chicago; Wm. T. Corlett, M.D., Cleveland, Ohio; C. H. Hughes, M.D., St. Louis; Chas. Wood Fassett, M.D., Krug Park Place, St. Joseph, Mo.

OBITUARY.

Dr. JACOB PRICE, one of the oldest physicians of Chester County, Pa., died at West Chester, June 9, 1905. He was taken ill while at his work in the Chester County Hospital a few days before his death. Dr. Price graduated from the Jefferson Medical College in 1850.

Dr. LAWRENCE C. SWIFT, medical examiner for Central Berkshire County, Mass., and a prominent surgeon, died last week in Pittsfield, of cerebrospinal meningitis. He was born in Geneva, N. Y., and was a son of McFee Swift, a civil engineer, who helped lay out the Erie Railroad. His grandfather, Col. Joseph Gardner Swift, was the first graduate of West Point, and afterward superintendent of West Point from 1812 to 1817. Dr. Swift graduated from the College of Physicians and Surgeons of New York in 1878, and practised in Des Moines until 1886, when he returned East.

Dr. DAVID DENNISON STEWART died at his home in Philadelphia, on June 13. His death closely followed the second operation for appendicitis within a few months. He was forty-six years old, unmarried, and was a son of the late Franklin Stewart, of this city. He was a graduate of Jefferson Medical College, a member of the College of Physicians and Surgeons, and physician-in-chief at the Episcopal Hospital. He had made a specialty of diseases of the heart, stomach, kidneys and nerves, and in recognition of his success as neurologist he was elected a corresponding member of the Edinburgh Society of Physicians at the same time Dr. William Osler and Dr. S. Weir Mitchell were so honored.

SPECIAL ARTICLE.

ON THE OCCURRENCE OF SPIROCHAETA PALLIDA, SCHAUDINN, IN SYPHILIS.[1]

BY SIMON FLEXNER, M.D. AND HIDEYO NOGUCHI, M.D.,
OF NEW YORK.

IN the last few weeks several papers have appeared in the German and French medical literature,[2] dealing with the spirochaete which Schaudinn and Hoffmann described as occurring in recent syphilitic lesions. The first paper by Schaudinn and Hoffman appeared almost simultaneously in the Arbeiten aus dem Kaiserlichen Gesundheitsamte and the *Deutsche medicinische Wochenschrift*. The paper in the former publication was illustrated with two microphotographs, showing the form of the organism. These papers were quickly followed by two communications from Metchnikoff's laboratory in the Pasteur Institute, confirming and accepting the discovery, and drawing attention to the interesting fact that Bordet and Gengou had observed the same micro-organism in a syphilitic chancre some three years before. However, as they failed to discover it in some syphilitic lesions which they subsequently studied, they abandoned any future search for it.

Hoffmann and Schaudinn's first publication dealt with a study of primary chancres, the enlarged glands of the groin attending these lesions and flat condylomata in syphilitic patients. The study consisted in the examination of fresh specimens obtained from the surface and interior of the primary lesions and the interior of lymph glands and condylomata, and stained specimens from the same sources. Certain control examinations were also made of non-syphilitic lesions of the genitals and of mixed lesions of these parts. The results were quite uniform and suggestive. From the cases of simple syphilitic infection the lymph glands, condylomata and interior of chancres, showed a variable number of spiral micro-organisms of great tenuity for which they propose tentatively the name *Spirochaeta pallida*, while the non-specific lesions showed a second spiral micro-organism, for which they also propose the name of *Spirochaeta refringens*. The latter organism had, doubtless, been seen and described before by several observers, notably by Berdal and Bataille,[1] Csillag[2] and Roma.[3] Schaudinn and Hoffmann did not find the first spirochæte in non-syphilitic lesions, nor did they find the second in the interior of the syphilitic lesions studied by them. From the study of Schaudinn and Hoffmann it is not difficult to explain the failure of previous investigators to perceive *Spirochaeta pallida* and in especial Bordet and Gengou's failure to obtain it in all of the several cases studied by them. The organism is difficult to see in the fresh state, and it is also highly refractory to staining so that special methods are required to demonstrate it in fixed preparations. The description of the organism is as follows:[4] In the length the spirochaeta varies from 4 to 10 μ, the average being 7 μ; in width the variation is from unmeasurable thinness to $\frac{1}{2}$ μ. The number of bends is from 3 to 12. The organism agrees in motility with the spirochaetæ rather than the spirilla; there are three characteristic movements: rotation on the long axis, forward and backward motion and bending of the entire body. There are indications of an undulating membrane but none of flageila. The poles end in sharp points. No further details of structure have been made out thus far.

For the purpose of the study of the fresh material dilution with salt solution of the expressed juices of primary lesions, or the fluid drawn by aspiration from the lymph glands, is permissible. Prepared in this way the spirochaeta were still actively motile, according to Schaudinn and Hoffmann, after six hours.

The staining is accomplished with difficulty and the best results thus far have been obtained with Giemsa's eosin solution and azure. Schaudinn and Hoffmann recommend the following formula:

Twelve parts of Giemsa's eosin solution (2.5 c.c. 1 per cent. eosin, 500 c.c. water).

1 From the Rockefeller Institute for Medical Research, New York.

2 The complete bibliography of the subject, up to the present time, is as follows:

Schaudinn and Hoffmann. Vorläufiger Bericht über das Vorkommen von Spirochaeten in syphilitischen Krankheitsprodukten und bei Papillomen. Arbeiten aus dem Kaiserlichen Gesundheitsamte. Berlin, April 10, 1905, XXII, Zweites Heft, 527.

Schaudinn and Hoffmann. Ueber Spirochaetenbefunde im Lymphdrüsensaft Syphilitischer. Deutsche medizinische Wochenschrift. May 4, 1905, XXXI, 711.

Metchnikoff and Roux. Recherches microbiologiques sur la syphilis. Bulletin de l'Académie de Medicine. Paris, May 16, 1905.

Buschke and Fischer. Ueber das Vorkommen von Spirochaeten in inneren Organen eines syphilitischen Kindes. Deutsche medizinische Wochenschrift, May 18, 1905, XXXI, 791.

Levaditi. Syphilis congenitale et Spirochaeta pallida Schaudinn, Comptes rendus de la Société de Biologie. May 26, 1905, LVIII, 845. La Presse Médicale, May 31, 1905, No. 43, 337.

Schaudinn and Hoffmann. Ueber Spirochaeta pallida bei Syphilis und die Unterschiede dieser Form gegenüber anderen Arten dieser Gattung. Berliner klinische Wochenschrift, May 29, 1905, XLII, 653.

1 Quoted by Schaudinn and Hoffmann.

2 Quoted by Schaudinn and Hoffmann.

3 Quoted by Schaudinn and Hoffmann.

4 Schaudinn and Hoffmann. Arbeiten aus dem kaiserlichen Gesundheitsamte, 1905, XXII, zweites Heft, 527.

Three parts Azur No. I (1:1,000 solution in water).
Three parts Azur No. II (0.8:1,000 solution in water).

The mixture is to be freshly prepared. The films, which should be thinly spread, are dried in the air and then hardened in absolute alcohol for ten minutes, after which they are immersed in the stain from sixteen to twenty-four hours. They are to be washed in water, dried in the air and examined in cedar oil.

Our study has thus far comprised a small number of recent cases of syphilis and two cases of non-syphilitic ulcer of the penis. We are indebted for the material studied to Dr. V. C. Pedersen, to whom we wish to express our obligations. The cases are as follows:

Case I.—Male, twenty years old. Luetic infection December, 1904. No regular treatment. He presented mucous patches of the tonsils and soft palate, and a fading rash of the trunk. Between the buttocks, flat condylomata. A condyloma was excised. Smears were made and stained in various anilines and with eosin-azur. Fresh preparations in salt solution were also studied. In the latter no characteristic organisms were found. The stained preparations were positive, showing a variable number of thin, lightly-stained spiral organisms identified as the species described by Schaudinn and Hoffmann. The positive results were obtained with aniline-water-gentian violet and eosin-azur, the latter having given the most satisfactory results. The films varied greatly, even with the same method of preparation. In some the number of stained spirals was very small, while in others the number was large, a single field showing as many as five. In still other cover-glasses no organisms could be discovered. The spirals were long for the most part and showed from six to twelve bends or curves.

Case II.—Male, aged thirty-four years. Burrowing non-syphilitic ulcer of the penis. Smears from the surface only could be obtained and they were negative for spiral micro-organisms.

Case III.—Male, aged twenty-three years. Mucous patches in mouth. Healed scar on penis. Enlargement and induration of glands of the groin. A small quantity of fluid, consisting of blood and lymph cells aspired from the enlarged glands. Fresh preparations negative; smears stained in eosin-azur showed a very few delicate, faintly-staining spiral organisms.

Case IV.—Male, aged eighteen years. Infection in January. For several weeks active antisyphilitic treatment. Primary lesion on glans penis; marked swelling of the glands of the groin. Part of primary lesion was excised and fluid was aspirated from an enlarged gland. In the fresh fluid of the gland diluted in sterile salt solution several small and a single larger motile spiral organism were seen. None of the stained preparations from the primary lesion or the gland juice showed spirochaetae.

Case V.—Colored male, aged twenty years. No definite history of time of infection. Presented himself with phimosis and balanitis. After incision of the prepuce three separate elevated, indurated lesions regarded as chancres appear. Moderate swelling of the glands of the groin. One of the lesions excised. Smears and fresh preparations were made from the base of the lesion. Fresh preparations negative. The smears stained in eosin-azur showed a moderate number of delicate spirals, agreeing with the description given by Schaudinn and Hoffmann. They varied in number in different cover glasses, and in some could not be found. The curves numbered from eight to twelve.

Case VI.—Male, aged twenty-three years. Non-syphilitic ulcer of penis; duration twelve days. Films stained in eosin-azur were negative for spirochaetae.

From this small series of cases it will be seen that of the four cases of syphilitic lesions the spiral organisms were obtained in stained preparations three times, while in the two cases of non-syphilitic lesions studied they could not be found. An anomaly exists in respect to Case IV, in which the spirals were missed in stained preparations, while they appeared to be present in the fresh state. No explanation can now be offered for this occurrence.

Schaudinn and Hoffmann express themselves very guardedly regarding the significance of the spirochaeta. They point out its presence in the typical lesions of the disease and its absence in the other forms of venereal disease studied. Important confirmatory contributions have come from Metchnikoff and Roux, who have demonstrated the same organism in the lesions of acquired syphilis in man and in experimental syphilis in the monkey and ape. In the last animals the material for study was obtained from the primary lesions produced by inoculation before ulceration had taken place. Additional confirmatory evidence of importance as regards the distribution of the spirochaeta is supplied by the observation of Levaditi and Buschke and Fischer upon congenital syphilis. These writers found that organism in the pemphigus bullæ and papules of the skin, and, in cases coming to autopsy, in films from the spleen and liver. Schaudinn reports that he also has obtained it from splenic juice removed by aspiration from a syphilitic patient.

Metchnikoff and Roux draw attention to the irregularity of distribution of the organism as indicated by the variation in numbers upon the cover slips. We have observed the same irregularity, but we are not yet prepared to state that the difference may not be due to the imperfect technic in staining. Metchnikoff and Roux and Levaditi prefer a more rapid method of staining the films, namely that of Marino,[1] which, up to the present, we have used but little. Should it serve as good a purpose as the slower eosin-azur, and should future study confirm the etiological position of the spirochaeta, a rapid and useful, and perhaps even a specific method of diagnosis would be afforded. Since the organism exists in the primary lesions and the glands of the groin in a demonstrable form, and since fluid from each can be obtained easily, with the infliction of little pain to the patient, and without in any way prejudicing the progress of his disease, we may look for a general study of the fluids obtained from these sources in suspicious and established forms of venereal disease with reference both to the occurrence and the specificity of *Spirochaeta pallida*.

SOCIETY PROCEEDINGS.

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

First Annual Meeting, held in Washington, D. C., May 18 and 19, 1905.

Second Day, May 19th—(*Continued*).

(Continued from Page 1097.)

Pathological and Bacteriological Section—(*Continued*).

Differences as to Primary Intestinal Tuberculosis.—Heller, of Kiel, finds a very large proportion of children who suffer from primary intestinal tuberculosis. At Berlin only two per cent. of children, sufferers from tuberculosis, have suffered primarily through the intestines. In Boston the proportion

1 Annales de l'Institute Pasteur, 1903, XVII, 357.

is much higher than this, though not nearly so high as in Kiel, while New York statistics seem to agree more nearly with those of Berlin. It is very difficult to explain these differences on any ordinary ground. It is true that in Schleswig-Holstein it is the custom to feed the children on unsterilized milk, while this is practically never done in Berlin, thus allowing many more opportunities for infection in the material that is examined at Kiel. This, however, is not enough to account for the difference noted. Heller insists that the technic of post mortem examination on the intestines in Berlin is unpardonably bad. The whole matter must be left undecided.

Human and Bovine Tubercle Bacilli.—It is now possible to tell whether a definite colony of tubercle bacilli is of bovine or human origin. The method is laborious and time taking, but is conclusive. In five cases now. Theobald Smith has found that primary intestinal tuberculosis was due to bovine tubercle bacilli. The Imperial Department of Health, in Berlin, evidently at the suggestion of Koch, undertook an investigation in the same line, and were satisfied that in three of the ten cases of primary intestinal tuberculosis, there was no question that bovine tubercle bacilli had been actively virulent in children. This number has since been added to by the same bureau of investigation. Behring, on the other hand, insists that nearly all cases are of bovine origin. He adds further that many children acquire tuberculosis during their almost exclusive milk diet life, and that this is what constitutes the real predisposition to tuberculosis in after life. This opinion will undoubtedly stimulate as much research as did Koch's declaration of the absolute difference and non-intercommunicability of bovine and human tubercle bacilli. There is no doubt that tuberculosis is much more frequent in infancy, and even the first few months of life, than has been supposed.

Early Tuberculosis and Immunity.—The interesting question has occupied many generations as to what relation there is between infantile tuberculosis and phthisis in later life. Professor Flint used to say that recovery from scrofula seemed to confer a certain active immunity to progressive tuberculosis in later life. Behring has insisted that protective immunity is produced in this way, yet there is no doubt that some of the supposed changes in structures which he has pointed out as consequent upon early infection with tuberculosis are fanciful and not justified by anatomical investigation. As a curious commentary on this possible immunity from early infection, a set of statistics, collected in German sanatoria for tuberculosis, showed that few of the patients had been artificially fed on milk when infants.

Congenital and Heredity Tuberculosis.—While generally conceded that the predisposition to tuberculosis was not infrequently inherited, it used to be considered that congenital tuberculosis was rather a curiosity. Baumgarten expressed the opinion that very many people were born with tuberculosis, but this was generally scoffed at. There are many demonstrated cases in which the presence of tuberculosis congenitally has been noted. One proof has been the great frequency of tuberculosis in the placentæ of tuberculous women. In twenty cases Schmor found that in nearly one-half there were demonstrable lesions of tuberculosis in the placentæ. These occurred not only in the case of mothers suffering from advanced or miliary tuberculosis, but also in incipient cases. No doubt in most of these the tubercle bacilli would find their way into the fetus. Hence, congenital tuberculosis must be considered more important than it has been. The rise of fatality in tuberculosis during the second quarter of the first year of infant life would seem to point to its development during the latter part of intra-uterine life.

Respiratory Tuberculosis.—It has been calculated that at most only four per cent. of the bacteria in the air breathed could possibly succeed in finding their way through the nose and the pharynx past the moist defences provided by nature to the lower respiratory tract. Even this, however, would be quite sufficient to account for many infections to the lungs. Certain it is that many other particles, such as soot, coaldust, and stonedust, find their way into the lungs in large quantities. The principal evidence, however, of the occurrence of aerogenic infection is the localization of the tuberculous process so often in the bronchial glands. It is evident that these bacilli have come from the parts of the body in the immediate connection with these glands, and not by any reversed current from other tissues. If then there is no tuberculosis elswhere, its presence in the bronchial glands is of itself sufficent to show that the tuberculosis has been acquired primarily through the respiratory tract.

Frequency of Bovine Tuberculosis in Human Beings.—Dr. Leonard Pearson, of Philadelphia, said that many recent statistics seem to show a higher frequency of human infection with bovine tubercle bacilli than that suggested by Dr. Welch. The English Commission appointed to investigate the subject, for instance, has found that in one-third of all the cases of primary intestinal tuberculosis the bacilli at work were of bovine origin. German observers found that over 14 per cent. of all primary intestinal tuberculosis was due to bovine bacilli. To Dr. Pearson it seems that probably one-half of all the intestinal tuberculosis is of bovine origin.

Marmorek's Antituberculous Serum.—Dr. Arthur J. Richer, of Montreal, discussed the therapeutic value of Marmorek's Antituberculous Serum. At first public sentiment was almost hostile to the use of the remedy and Dr. Richer began as a skeptic. He found it of such good service in advanced cases, however, that he prevailed on a few patients with incipient tuberculosis to try it. In seven advanced cases there was always improvement after its employment and four have kept up this improvement. Up to the present he has used it in nine incipient cases, and in most it has brought improvement in the first forty-eight hours after the injection. The serum produces no reaction in healthy subjects. Dr. Richer has injected 10 c.c. into himself without producing any reaction.

Symptomatic Relief.—It produces an effect upon symptoms at once. The pulse comes down and the temperature is reduced, and the lack of appetite so characteristic of certain early progressive cases is at once relieved. The remedy may be considered to be truly specific, since it did not fail in a single instance to bring relief. Dr. Richer's custom is to give an injection of 10 c.c., followed by a similar dose three days later. Then there is a rest of over a week. When decided improvement has taken place, the injections are repeated not oftener than once a month.

Serum Diagnosis of Tuberculosis.—Dr. Hugh M. Kinghorn, of Saranac Lake, N. Y., read a paper in which he discussed the agglutination test for tuber-

culosis. Ordinarily tubercle bacilli grow in compact masses, and may be said to be agglutinated from the beginning. If grown for a time on potatoes, however, and then transferred to beef broth, the culture becomes homogeneous, and may be used for agglutination test. According to the experience at Saranac, the serum of agglutination cannot be depended upon as a diagnostic test, though some observers have considered it of equal value with Koch's tuberculin in this respect. As regards prognosis, it seems to have more value. A positive reaction is present in cases that are running a favorable course. In far advanced cases, with extensive lesions and progressive course, the serum reaction is absent. The agglutinative reaction has been found in a certain number of healthy persons, but they were individuals much in contact with tuberculous patients, and who might be thought, therefore, to be harboring tubercle bacilli some place in their tissues.

Agglutination and Prognosis in Tuberculosis.—Dr. H. R. M. Landis, of Philadelphia, read for himself and Dr. Ravenel a paper on the value of the agglutination test for estimating the prognosis in tuberculosis. The higher agglutination reactions occur in incipient favorable cases. A patient who gained 45 pounds, but had the rapid pulse of an unfavorable case gave the agglutination test only at a dilution of one to ten. Agglutination is not of service for diagnosis, but is for prognosis. A stay in a well-conducted sanatorium always raises the agglutination power.

Immunity in Tuberculosis.—The papers on immunity in tuberculosis, the first on the properties of the serum of immunized rabbits, and the second a histological study of the lesions in immunized rabbits, were presented from Dr. Trudeau's laboratory at Saranac Lake.

Properties of the Serum of Immunized Rabbits.—Dr. E. R. Baldwin discussed the observations made by himself, and Drs. H. M. Kinghorn and A. H. Allen, of Saranac Lake. These observations were made on Belgian hares. Thirteen were vaccinated by weekly virulent bacilli which had lost their virulence by long keeping. Usually no effect was produced by the vaccination as regards the immediate health of the animal. These animals were then inoculated with virulent cultures of tubercle bacilli. During the first ten days after the inoculation, the fever was higher and the general symptomatic reaction worse in the vaccinated animals than in the unvaccinated. After this, however, there was a reversal and the non-vaccinated animals showed more symptoms. This state of affairs continued as long as the animals continued to live. The vaccinated animals grew constantly better, the unvaccinated animals constantly worse. At the autopsies on the animals it was found that this state of affairs corresponded with the inflammatory reaction produced, which was greater at first in the vaccinated, but much less later on.

Morbid Lesions in Immunized Rabbits.—Dr. J. D. Nichols, of Saranac Lake, said that during the first days after inoculation, the vaccinated animals presented a much higher temperature than those that had been unvaccinated. Even after twenty-four hours, if the animals were put to death, the appearances were quite different. In the vaccinated animals there was congestion and many leucocytes evidently prepared for the reaction against the virulent bacilli, which was about to take place. After a time in the vaccinated animals the tubercles were seen to be breaking up. The infiltration around them was disappearing and the congestion lessening. The capillary rings around the tubercles are still distinct and the cells of the vessels contain much nuclæ. After a time the bacilli had totally disappeared from the lesions in the vaccinated animals, while many micro-organisms were still to be found in the control animals.

Artificial Immunity.—Dr. Trudeau, in opening the discussion, said that when fifteen years ago he first presented the subject of artificial immunity to the profession, it seemed to be the dream of an idealist. Now there are many more objective grounds for crediting its possibility. So far, however, no positive lasting immunity in tuberculosis has been obtained. One difficulty, of course, is to be found in the fact that the animals used do not always react as expected. The rabbit, for instance, is not always affected by human tuberculosis. Vaccination then will sometimes fail and the inoculation may prove illusory because the special animal used may have had a higher protective reaction than was expected.

Vaccination by Dead and Living Bacilli.—Dr. Trudeau said that a certain amount of immunity can be produced by dead as well as by living bacilli. Vaccination by dead bacilli, however, does not stand the test of time, and indeed, as a rule, soon ceases to provide any active protection. The degree of success obtained depends somewhat on the cultures used for vaccination purposes. At Saranac the custom has been to employ cultures of tubercle bacilli whose virulence has been attenuated by growth on media outside the body for many years. For instance, they still possess at Saranac the descendants of the original culture of the *Bacillus tuberculosis* obtained by Koch twenty years ago. Another bacillus that is used for vaccination purposes is that of a human tubercle bacillus that has been grown on artificial media for fourteen years. Besides these two cultures supposed tubercle bacilli from cold-blooded animals were used in order to note the difference in the immunity of pain.

Effects of Vaccination.—With regard to the so-called tubercle bacilli from cold-blooded animals, no vaccinal effect at all could be noticed. Much work has been done in this line and reported in such a way as to raise hopes with regard to it, but no confirmation of these conclusions could be obtained at Saranac. Animals vaccinated with such cultures were not at all protected against virulent tubercle bacilli. On the other hand, animals vaccinated with the original culture of Koch's bacillus were somewhat protected, though the protection afforded was not very striking. On the other hand, animals inoculated with the fourteen-year-old cultures of human bacilli were so well protected that only rarely could lesions be seen after inoculation with virulent tubercle bacilli. In one only one caseous spot could be found after careful search.

Phagocytosis in Tuberculosis.—Dr. William H. Welch, of Baltimore, in discussing the question of immunity in tuberculosis, said that it would be interesting to determine whether there is really a phagocytic action which is increased by such vaccination. It is possible that the predisposition to tuberculosis consists only in a lowering of the bower of the phagocytes in a particular individual. Vaccination then, as studied at Saranac, would seem to show a greater susceptibility in the animal, but at the same time a greater resistance. The studies seem to point to the teaching so common in the old time that the tubercle is not the essence of the dis-

case in tuberculosis, but that it is rather the effort of nature to protect herself against invasion.

Studies in Immunity.—Dr. Leonard Pearson said that the first studies in tuberculous immunity were made here in America, the work of Drs. Trudeau and De Schweinitz, antedating those of the German investigators in this field. American work has always had more lasting value in this matter than that of foreign countries. With regard to the so-called tubercle bacilli of cold-blooded animals, and especially the frog bacilli, recent investigations seem to show that these are not true tubercle bacilli, but are only certain acid fast bacilli resembling tubercle bacilli, that is, certain micro-organisms which are not decolored by acids once they are stained, though they have no relationship with the true bacillus of tuberculosis. These frog bacilli are common in ponds and are really saprophytes and do not belong in the group of pathogenic bacilli at all.

Observations on Monkeys.—Dr. Pearson has been experimenting with the immunization of monkeys, but has not succeeded to any extent. These animals were vaccinated by means of avian tubercle bacilli and were then exposed at the Zoological Garden among other monkeys suffering from tuberculosis. They did not seem to be protected against the disease. Any vaccination for tuberculosis so far obtained, even for animals, is not absolute, but it must be remembered that the vaccination for anthrax is not absolute, and yet it is very protective for a time. Cattle vaccinated against anthrax will acquire the disease if given a massive dose of infected material, but they are protected against all ordinary doses.

Human Inoculations with Virulent Cultures.—Dr. Welch, of Baltimore, said that certain of the foreign observers have, after supposedly vaccinating themselves against tuberculosis, dared to inject tubercle bacilli into themselves. Klemperer is one of those who has been taking such observations. Möller even went so far after vaccinating himself with cultures of a supposed tubercle bacillus found in the sloe worm, as to inject virulent cultures of human tubercle bacilli intravenously. It is true that a very small amount of the culture was used, and the medical world has not taken the observation very seriously.

The Blood in Tuberculosis.—Dr. F. A. Craig, of Philadelphia, read for himself and Dr. Josephus Ullum, a discussion of observations on the blood with special reference to the prognosis of tuberculosis. In unfavorable cases they have found a much greater decrease of the red blood corpuscles than in those in which the prognosis was better. A low hemoglobin content was also of unfavorable prognostic significance. In unfavorable cases the lymphocytes particularly were reduced in number. As soon as the patient begins to improve, there is an increase in the red blood corpuscles, but a still more marked increase in the leucocytes. Whenever there is not a leucocytosis under treatment, the case is not favorable. An increase of the lymphocytes particularly is a sign of increase of resisting power.

Dr. William S. Welsh said that as it is the mononuclears which ingest bacteria and act as phagocytes, this observation of the increase of the large and small lymphocytes is especially interesting. There seems to be no doubt now that in certain fevers the polynuclear leucocytes are inhibited. The question as to their inhibition in tuberculosis would then be interesting.

In closing the discussion Dr. Craig said that the only case in which a number of polynuclear leucocytes were seen was one of empyema. It would seem then that there was inhibition of the polynuclear leucocytes in tuberculosis.

Chlorosis in Tuberculosis.—Dr. W. B. Stanton, of Philadelphia, said that the diagnosis of latent or incipient tuberculosis is extremely important and every possible hint for early recognition must be taken. It would seem that in certain patients whose blood is especially sensitive, a blood examination might be of help in these cases. He called attention to the fact that in recent years, when the early diagnosis of tuberculosis is much better understood than it used to be, there are ever fewer cases of chlorosis in the literature. It would seem as though not a few of the cases of supposed specific anemia in young girls were cases of incipient tuberculosis.

Thyroid Gland in Tuberculosis.—Dr. W. B. Stanton, of Philadelphia, said that the older pathologists considered that the thyroid gland was practically immune to tuberculosis. Rokitansky, who had made so many autopsies, considered that it was never affected by the disease. Virchow thought that it was the organ least affected in the body. As a rule thyroid tuberculosis is dismissed in the text-books with a few lines. Dr. Stanton has found it, however, in autopsies at the Phipps Institute, much more common than has been thought. It occurs in two forms, a nodular, and then in miliary tuberculosis. The latter is the most frequent.

Graves' Disease and Tuberculosis.—Dr. Stanton has found that under certain circumstances, the symptoms of so-called latent Graves' disease, or the abortive forms of the affection, are like those of tuberculosis. This is especially true as regards the tremor, the rapid pulse and the slight thyroid enlargement. These symptoms disappear in many cases under the same form of treatment as improves tuberculosis. There seems to be no doubt that some of these patients are really suffering from incipient tuberculosis, not necessarily affecting the thyroid, but giving symptoms resembling an affection of that gland. It seems possible that the thyroid itself is roused into activity by the presence of tuberculous lesions much oftener than has been thought.

Tuberculous Toxins.—Dr. D. J. McCarthy, of Philadelphia, said that the symptoms pointed out by Dr. Stanton were a product of the toxins of tuberculosis and not of any increased secretion of the thyroid. In incipient cases of tuberculosis, tachycardia and some tremor are very common. These symptoms are due to the action of the toxins of tuberculosis on the sympathetic system. There may be an affection of the thyroid complicating tuberculosis, but the thyroid itself is not often affected in the early stages of the disease.

Dr. Trudeau said that it is at times very difficult to decide just what the suspicious symptoms attributed to early tuberculosis may be due to. This is especially true for the tachycardia and tremor, with other nervous disturbances. In such cases, tuberculin is of value as an aid to diagnosis.

Dr. Baldwin said that the toxin of tuberculosis undoubtedly acts on the nervous system and especially on the sympathetic nervous system.

Dr. Newman said that he had recently seen a case in which the symptoms of Graves' disease developed during phthisis. The Graves' symptoms reached their maximum in two weeks and had no influence at all on the cause of tuberculosis.

Dr. Clark, of Youngstown, Ohio, said that in a case recently seen, there was suspicion of Graves' disease until the symptoms of tuberculosis developed. Undoubtedly the practitioner will be benefited by realizing that these affections have much more in common than has been thought.

Dr. Dunn, of Asheville, N. C., said that in earlier life he had himself been a sufferer from exophthalmic goiter and now for many years had been engaged in the exclusive study of tuberculosis. Very naturally, then, his attention had been called to the co-existence of the two diseases whenever this occurred. He has been on the lookout for symptoms of exophthalmic goiter. Only rarely, however, has he seen the combination.

Dr. Stanton, of Philadelphia, in closing the discussion, said that his idea was to call attention to the fact that the thyroid gland was affected by tuberculosis much oftener than had been thought, and also to the possibility that latent Graves' disease might be the mistaken diagnosis for certain cases of incipient tuberculosis.

Tuberculosis of the Thoracic Duct.—Dr. Warfield T. Longcope, of Philadelphia, discussed the relationship between acute miliary tuberculosis and the occurrence of tuberculous lesions in the thoracic duct. In 25 cases of acute miliary tuberculosis that came to autopsy, 17 of them had lesions in the thoracic duct. In one of those in which there was no thoracic duct tuberculosis, there was tuberculosis of the epididymis. Others had their primary lesions elsewhere. Usually there was a large caseous nodule situated near the receptaculum chyli. Usually the lymph nodes in the neighborhood were also affected. At times there were no lesions except those of the duct, and of course it must be remembered that the tubercle bacilli may pass through the mucous membrane of the intestines without producing any serious reaction. From these cases it would seem that in most instances the beginning of the generalization is the invasion of the thoracic duct.

Vitality of Tubercle Bacilli.—Dr. David C. Twichell, of Saranac Lake, gave the results of some observations on the vitality of the tubercle bacillus in sputum when subjected to drying and sunlight and various other atmospheric conditions. When exposed to light, the bacilli gradually lose their virulence. In diffuse daylight, after seven days they cease to be virulent. On the floors of dwelling houses they were found, however, to be virulent after two and a half months. There seemed to be no difference in the vitality of the bacilli gathered in the sunlight in the middle of the room or in the dark corners. Dried bacilli still continued to be virulent for a long period. Direct sunlight may kill them in a few hours. Freezing did not seem to have any special affect on them. Moisture and darkness keeps them alive for unlimited periods. On handkerchiefs or on woolen blankets kept in dark rooms they may still be alive after many months.

Artificial Protection of Man Against Tuberculosis.—Dr. James J. Walsh, of New York, read an abstract from a paper on this subject by Dr. C. Figari, of Genoa. Dr. Figari has not succeeded in producing immunity in animals, but has succeeded in showing that the products of certain animals which have been vaccinated with attenuated cultures of the tubercle bacillus may help in protecting man against the disease. For instance, the meat and milk of animals that have been vaccinated may be used to produce a limited immunity at least that furnishes some protection, especially to predisposed persons, against the contagiousness of tuberculosis.

Dr. Figari's paper will appear in full in a subsequent issue of the Medical News.

Vicarious Bowel Action in Tuberculosis.—Dr. Joseph Walsh, of Philadelphia, read for himself and Dr. Lawrence F. Flick, a paper in which he discussed the vicarious action of the bowel for the kidney in certain cases of incipient tuberculosis. Dr. Walsh said that in certain cases of incipient tuberculosis there is a looseness of the bowels not due to the presence of ulcers that is usually considered to be irritative and due to indiscretions of diet. Careful investigation, however, seems to show that this is really a vicarious action for the kidney. In 14 cases of long-standing tuberculosis in which there had been considerable diarrhea, the intestines were found to be normal, though the kidneys were degenerated. The diagnosis in these cases would have been enteritis. The more study there is, however, the less are serious symptoms attributed to healthy organs. In all of these cases there was acute diffuse nephritis. Usually there are tubercles in the kidney, the cortex was softer and thicker than normal and there was congestion of the pyramids. The glomeruli and the uriniferous tubules showed swelling. There was a distinct, small, round infiltration due to tuberculosis. On the other hand, there were no ulcers in the intestines and no enlargement of the mesenteric gland.

Nephritis in Tuberculosis.—Nephritis in tuberculosis would not be surprising, since it is very common to find tubercle bacilli in the urine of patients suffering from the disease. In 40 out of 60 cases of tuberculosis examined for this purpose, tubercle bacilli were found in the urine. These were not advanced cases, but often in an early stage, and many cases of tuberculosis eventually die of nephritis rather than of their pulmonary condition.

Vicarious Sweating of the Bowel.—Dr. Blumenthal, of Syracuse, N. Y., described a case of tuberculosis in which the patient had had a lesion at the left apex for five years without much advance. The character of the tuberculosis changed, however, and a distinct febrile temperature occurred every evening up to 102° F. At the same time a distinctive attack of colic with rumbling in the bowels and loose stools manifested itself. These stools were not the ordinary diarrhea stools, but properly digested material carried out in an abundance of fluid. During the day the patient had regularly formed stools. Whenever this attack did not occur, there was a severe night-sweat. The night-sweats were absent after such an attack. Shortly after the movement of the bowels, the temperature went down and the patient was much more comfortable. In this case careful examination was made at various times, but no nephritis was present. The loose stool then seemed to be a vicarious manifestation, taking the place of the sweating noticed in other patients and at other times in this patient.

Landry's Paralysis and Tuberculosis.—Dr. D. J. McCarthy, of Philadelphia, described a case in which Landry's paralysis developed in the midst of active tuberculosis and ran the usual fatal course to bulbar palsy with difficulty of swallowing and respiration in seven days. The first loss of power noted was in the arms, then followed weakness of the legs until this became complete palsy, then the shoulders were affected and some difficulty of swallowing was noted. After this there was a disap-

pointing remission followed after two days by further progress, especially in the bulb, and then the fatal termination. Not a cell in the spinal cord was in a normal healthy condition. The Klebs-Löffler bacillus, as a secondary infection, was found present in the case.

The Early Diagnosis of Tuberculosis. Committee Report to the National Association for the Prevention and Study of Tuberculosis.[1]—The diagnosis of phthisis, of that well-developed stage of pulmonary tuberculosis, offers no difficulty whatever, the symptoms are well-marked and typical, the pulmonary signs easily discoverable, the expectoration contains bacilli—the clinical picture is so typical that mistakes in diagnosis cannot well be made, even by the superficially trained observer. But this stage of pathological development in the great majority of cases is reached only after very long periods, during which all signs and symptoms are less typical, less marked from that time on when infection took place. During this time, which marks the true incipiency of the malady and which anatomically is characterized by the formation of few isolated tubercles in lymph glands or lung tissue, nor or only vague general symptoms exist, none on which to base a positive diagnosis of the disease. Investigation has shown that such infections are of very frequent occurrence, and that only in a comparatively small percentage of these cases does the disease develop further. However, this percentage is sufficiently large to make tuberculosis the most destructive of all diseases, and the demonstration of its frequent and spontaneous arrest and of its curability by certain therapeutic measures at an early period of its development, must induce efforts of recognition long before the stage of phthisis is reached.

The discovery of the tubercle bacilli in the sputum of patients suffering from the disease constitutes a diagnostic means of indisputable accuracy. However, the consideration alone of the fact, that tubercle bacilli can appear in the sputum only after the caseation and breaking down of a tubercle situated near a bronchus, or bronchiolus, makes it certain that tuberculous changes occur previous to the appearance of the bacillus in the sputum. This is borne out also by the clinical observation of a recognisable stage of tuberculous lung involvement, before bacilli are found in the sputum and the adoption of the term "closed," designating this stage, in opposition to "open," *i.e.*, with bacilli found in the sputum, can be recommended for a more general introduction.

From the therapeutic standpoint, the diagnosis of pulmonary tuberculosis in its closed stage is of the utmost importance, the chances of permanent recovery diminishing proportionally with the postponement of rational therapeutic measures. These measures being on the whole nothing but a radical change in the patients' mode of life, will also interfere less with the patients' usual occupations, the earlier the diagnosis is made. Hence also, for this reason, the paramount importance of an early diagnosis. The physician who declines to make a positive diagnosis of tuberculosis on account of the absence of the bacillus in the sputum only, assumes a very grave responsibility and great caution in this respect cannot be urged sufficiently. Whenever certain signs and symptoms justify a suspicion of the disease, without there being positive evidence, it is wise to instruct the patient carefully as to his mode of life, to watch him closely and to repeat the examination at stated intervals.

As regards the examination, it may be said in general that a close and careful investigation of constitutional as well as local manifestations by the simplest methods will often reveal sufficient evidence for a positive diagnosis. The search for bacilli in the sputum has unfortunately brought about a neglect of these methods.

The history of the patient may or may not contain useful information; it ought to be carefully investigated in every case. Predisposing factors, such as cases of tuberculosis in the family and among intimates, or unhygienic mode of life, dusty and confining occupations, must all be taken in consideration, their absence in one case, on the other hand, must not discourage further examination.

The symptoms of incipient tuberculosis will rarely offer anything typical. We may have a very early hoarseness or a condition resembling that of chlorosis or neurasthenia, of bronchitis or dyspepsia. Cough may or may not be present. Hemoptysis in the absence of other causes among all the symptoms, which may be found in the history, is one of the greatest significance. Typical signs are sometimes absent for weeks after the hemoptysis. Vague as all these symptoms may be and characteristic for various morbid conditions, they assume diagnostic value only when considered together with the results of a careful physical examination.

Here inspection first of all will have to reveal conditions of stature and physical development, which in their deficiencies we know to be indicative, if not of the disease itself, at least, of a predisposition to it. Length and weight of body, circumference and degree of expansion of chest, are data of importance and in their correlation give indication of the bodily condition and state of nutrition. Still we must not depend on finding often the classical *habitus phthisicus*, the paralytic thorax, if we are to make an early diagnosis of tuberculosis. However, these data as well as the determination of symptoms are of greatest value, if for nothing else but a guidance in subsequent examinations, and for that reason should not be neglected in any case.

Of great importance is the temperature. Even a slight rise of temperature in the afternoon, if other causes can be excluded, ought to arouse invariably our suspicions. Very often this is overlooked, and to shield against such oversight, great care in the measuring of the temperature is to be recommended. Whenever possible a two-hourly record for a period of several days ought to be taken, a good thermometer to be placed in the mouth with tightly closed lips and held there for at least five minutes, the patient in a room of even temperature. It will also have to be remembered that in some tuberculous patients the rise of temperature appears only after some exercise, in women before and at the time of menstruation.

The physical examination of the chest by inspection, palpation, percussion and auscultation, if carefully and properly performed, will give more direct evidence than other methods. It may be said here that the newer methods of examination, notably that with the Roentgen rays cannot, at least in their present state of development, claim superiority over the results obtained by the above-mentioned methods.

Attention shall be called here only to a few signs

1 Presented at the Annual Meeting, in Washington, D. C., May 18, 1905, by Drs. A. C. Klebs, J. H. Musser, F. Billings, J. C. Wilson, and H. R. M. Landis.

indicating limited lung involvement. On inspection very often a retardation in the respiratory movements over the affected lung portion can be observed, especially over one apex. This retardation is more pronounced in a more recent involvement of the corresponding area of the lung (Turban). Foci of greater extent diminish the excursions of the diaphragm of the affected side. This can be demonstrated on the fluoroscent screen, but equally well and without apparatus by the observation of the diaphragmatic excursions by means of Litten's shadow.

The vocal fremitus in early pulmonary tuberculosis gives little information. It may be increased or decreased over areas of pleural thickening, over pleuritic exudations it is always diminished.

Painstaking percussion and auscultation of the chest, over all parts and always comparing the two sides, is of the greatest value. The use of the blue pencil for marking the border lines and determining the excursions of the lungs cannot too strongly be urged. Strong percussion, on the whole, should be avoided. Marked dulness is but rarely found over portions of the lungs in incipient tuberculosis; however, the percussion will elicit sometimes a significant retraction of one apex as compared with the other.

In judging the results of the examination by auscultation, it should always be remembered that many of the signs are subject to considerable variation, depending on the time at which the examination is made. Râles which we can easily discover in the morning will regularly be absent during the afternoon. Also on damp and rainy days we will find them when they are absent in dryer weather. Also do we find in women pulmonary signs accentuated at the time of menstruation. All these circumstances must be considered before a final judgment of the case is given.

Although every portion of the lung (including the lingula over the heart dulness) should be examined with the stethoscope, particular attention will have to be paid to the upper portions of the lungs and also to the lower borders and the axillary regions.

As the earliest auscultatory sign in early pulmonary tuberculosis we can regard the rough and the slightly diminished respiratory murmur. The former must not be confounded with the sharp (puerile) respiratory murmur, which is more a sign of increased function than of swelling of the mucosa. Both are vesicular murmurs; the rough character is produced by a succession of sounds, following each other too rapidly for aural differentiation. Is the succession less rapid, then we speak of an interrupted respiratory murmur, which suggests much coarser changes. Thus the rough murmur changes the character of the respiratory sound, it loses its "smooth" quality and becomes "impure and roughened" (Sahli). When these adventitious sounds become audible beside the vesicular murmur, then we can speak of râles. The rough murmur is produced by slight inflammatory changes in the bronchioli, the air passing over an uneven surface and through a slightly narrowed lumen. It is principally audible during inspiration over the apices and below the clavicles. This murmur precedes the appearance of râles (not the case, as a rule, with the puerile murmur), and thus is the earliest auscultatory manifestation of tubercular involvement of the air passages. Distinct attention should be paid to it therefore. The appearance of râles over the apices (also in the axillary region) is next to it in importance. Râles indicate catarrhal conditions; with them the intensity of the vesicular murmur is usually diminished, which is also produced by more pronounced swelling of the bronchial mucosa. In the earliest stages we hear usually fine crackling râles, they can often only be heard directly after the patient has coughed.

Bronchial respiration we hear but rarely in early tuberculosis; when it appears we have to deal with a more extensive process. By its localization in the apices and together with other signs, it is, of course, pathognomonic of consolidation; the same may also be said as regards the other deviations from the normal respiratory murmurs, which are indicative of profound tissue changes, to discuss which does not come within the scope of this report. On the other hand pleuritic friction is often heard at an early period, most frequently in or near the axillary line between the sixth and eighth ribs.

Only passing mention can be made of other diagnostic methods, of which tuberculin is the most important. Although it is well understood that by injection of small doses of tuberculin and by the febrile reaction thus produced in tuberculous individuals, we can diagnose early tuberculosis, the method necessitates great care in its application and an apparatus too complicated for general use, so that it does not lend itself to a more general introduction. The dangers of the preparation in the hands of one well acquainted with the method are very slight, but by applying carefully the other means of observation and examination, a case will rarely be found in which it would add considerably to the information gained.

The fact that certain salts, especially iodine salts, increase catarrhal symptoms and thus make them more perceptible to auscultation, has led to their administration for diagnostic purposes. For similar reasons as the above stated, a general introduction of this method cannot be recommended.

The examination with X-rays has the drawback of a complicated apparatus. Besides its value over the other methods has not yet been satisfactorily demonstrated.

Various other methods have been advocated for the early detection of tuberculosis,—inoscopy, sphygmography, sphygmomanometry, serum test, etc., all apt to increase our knowledge of the disease, but of no practical advantage in the every-day diagnosis of so frequent a disease. The careful and painstaking application of the methods well taught and well understood, with the simplest apparatus, but applied with a broad conception of the pathogenesis of the disease, will bring about much earlier diagnosis than are usually made.

BOOKS RECEIVED.

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Progressive Medicine. Edited by Dr. H. A. Hare. Volume IV, December, 1904. 8vo, 374 pages. Lea Brothers & Company, Philadelphia and New York.

Report of Superintendent of the Government Laboratories in the Philippine Islands. 8vo, 622 pages. Illustrated. Bureau of Insular Affairs, Washington, D. C.

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ORIGINAL ARTICLES.

EDUCATION WITHIN THE MEDICAL PROFESSION.[1]

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IT is generally conceded that there is no other department of knowledge of so much value to the human race as that of medicine. From the standpoint of practical utility, the most important portion of this knowledge relates to Preventive Medicine, and its benefits to humanity are measured by the degree in which it is shared with the public, and thus made available for hygienic purposes.

In marked contrast with the spirit and traditions of ancient medicine which jealously guarded its secrets or disclosed them in Delphic utterances, the genius of modern medicine is essentially in the direction of the popularization of hygienic knowledge.

This change in professional policy has come from the recognition of the fact that the most powerful aid to the progress of preventive medicine and the practical application of sanitary measures is the education of the public to an appreciation of the need and value of prophylaxis. The sanitary control of smallpox by universal vaccination has only been rendered possible by education of the public as to the value of this prophylactic measure. The brilliant results already achieved in the prevention of tuberculosis are largely due to enlightening the public as to the dangers of this disease and the means by which it is spread. The prophylactic value of education has been applied to the prevention of almost all communicable diseases with a single exception—and that a class—the most essentially human of all diseases—which poison the very sources of human life, and which, from their frequent introduction into marriage, are most injurious to the welfare of the family which underlies the welfare of the race. The special knowledge possessed by the medical profession in regard to these preeminently social diseases is a sealed book to the public—a light hidden under a bushel.

What is the explanation of this anomaly? *A priori* it would be assumed that the public would want to know all about a class of infections which, in addition to their dangers to the individual, have such an important social interest, but it must be admitted that there is, on the part of the public, an indifference—even an active opposition to this enlightenment—due partly to the erroneous idea that these diseases are the exclusive appanage of vice—but chiefly to the traditional shameful character with which they have been invested by popular prejudice. As a consequence, there exists among the general public the densest ignorance respecting the dangers of these diseases, their modes of communication direct and indirect—and especially the dangers which come from their morbid irradiations into family and social life.

Whatever may be the ultimate expansion of this Society's work, it is proposed that it shall begin along educational lines. Since the medical profession is the repository of this hygienic knowledge, it is evident that physicians must be the chief purveyors of this knowledge to the public. This education must be both collective and individual. The collective instruction through lectures, pamphlets, tracts, etc., and other agencies of popular enlightenment can be best undertaken by this Society in its corporate capacity, but the individual instruction must be largely accomplished through the personal propagandism of physicians. The family physician—a genus fortunately not entirely extinct—despite the encroachments of specialism—is peculiarly well adapted for this work. Through his personal, as well as his professional relations with his clientele, he can inculcate in young men sound and sanative ideas of sexual hygiene, imbue them with a wholesome fear of venereal infection and give them correct ideas of the dangers it entails both individual and social.

In organizing a campaign of prophylaxis, it is pertinent to inquire how thoroughly the rank and file of the profession are equipped for this educative work. But before entering upon this inquiry, we may glance for a moment at certain popular errors in regard to the sexual system and its diseases for which the medical profession is, in some measure, responsible. In general it may be said that popular conceptions of disease are but the reflected opinions of the medical profession—imperfect, distorted, exaggerated, it may be—but having, nevertheless, a substratum of medical authority. This is especially true of a class of diseases which from their private, secret nature are confidential between the patient and physician, and concerning which the impressions of the patient come more or less directly from the physician.

Now it may be easily shown that many of the views of the laity upon venereal diseases are but the discarded opinions of the medical profession; in other words, the popular errors of to-day are the professional errors of our fathers. Such, for

1. Read at the meeting of the Society of Sanitary and Moral Prophylaxis, April 14, 1905.

example, as the idea almost universally prevalent, that sexual indulgence is a physical necessity for men, the fallacy of which has been so ably exposed in Dr. Keyes' paper. It is most unfortunate that this heresy, unphysiologic as it is immoral, is still promulgated by many medical men.

Another popular error is the ignorant contempt of the danger of venereal infection. Many of the laity still look upon gonorrhea as of no more significance than a "cold in the head," and the type of man who boasts of having had a "dozen doses," and "that it amounts to nothing," is by no means extinct. But do not many of us recall the time not far remote when the gonorrheal patient was received by the physician with a smile of levity, and his "little misfortune" was made the subject of a joke or some playful badinage, when the cessation of the acute discharge was considered an evidence of cure, and for the occasional intermittent discharge, persisting in the form of gleet, "the sexual hygiene of married life" was recommended as the best means of cure. It is questionable whether even at the present day the mass of the medical profession is familiar with the more recent advances made in our knowledge of gonococcus infection —advances which have entirely transformed our conception of the disease in respect to its dangers to the individual and its significance as a social peril.

Another error, almost universal among the lower, uneducated classes, is that the contagion of syphilis ends with the cure of the chancre. So deep-rooted is this error that it is difficult to convince them that genital sores are not the exclusive source of contagion. This is but a survival of Ricord's doctrine promulgated less than half a century ago that "the primary ulcer in its period of extension is the sole source of the syphilitic virus."

Even among the educated classes of the public few are familiar with the multiple modes of syphilitic contagion and the dangers which come from its morbid irradiations when introduced into married life.

These popular misconceptions are not surprising in view of the fact that the history of venereology has been a record of errors. It is only within a comparatively recent period that it has been established upon an exact scientific basis.

Our knowledge of gonococcus infection is essentially a modern acquisition. Before the discovery of Neisser its etiology was not understood and the wide range of its pathological effects was not even suspected. Our knowledge of gonorrhea in women was most rudimentary and incomplete, largely because it had never been the subject of serious and careful study, and until the development of modern gynecology our methods of exploration were crude and the interpretation of clinical phenomena was necessarily incorrect. The modern conception of the field of syphilitic pathology has been no less amplified. Our knowledge of internal or visceral syphilis, its cerebral, spinal, arterial, and hepatic complications, the group of parasyphilitic affections, late hereditary syphilis, etc., has been the product of the last third of the century just closed. We may well ask has this new knowledge been assimilated by the general medical profession?

Another measure advocated by this Society, more purely medical even than education, is prophylaxis by treatment. In dealing with a class of diseases which are contagious during a prolonged period the prompt suppression of sources of contagion by treatment is recognized as the most effective measure in preventing the spread of infection. The cure of the individual and the prevention of disease go hand in hand. In order to realize the full value of prophylaxis by treatment the physician should not only have a theoretical and practical knowledge of these diseases, but he should be thoroughly up to date in his methods and appliances of diagnosis and treatment.

And here I may allude to another popular error most dangerous in its practical tendency, viz., that the treatment of venereal diseases requires no special medical knowledge or skill, hence patients have no hesitancy in entrusting their cases to the apothecary's clerk, the ignorant quack or the merest tyro in medicine, or they may even avail themselves of the prescriptions of an obliging friend, with this deplorable result, that the vast majority are improperly or insufficiently treated and not definitely cured, and they go on scattering broadcast the seeds of dangerous infections which might have been sterilized by proper treatment.

I will venture the statement that there is no class of diseases in any department of medicine which in the past has been so neglected, mismanaged or received such a routine and unscientific treatment as the venereal class. Many physicians still look upon gonorrhea as a trivial affection, and their entire armamentarium consists of a glass syringe and a half dozen or more formulæ for injections. To them, syphilis is simply a sequence of primaries, secondaries and tertiaries and the whole therapeutic problem resolves itself into so many months of mercury followed by so many months of iodide of potassium.

The idea that only the merest modicum of medical knowledge is required for the management of venereal diseases may be traced back to its legitimate source in the low standard set by our medical schools in not demanding a knowledge of these diseases as a condition of graduation. Venereology has always occupied a subordinate position in the system of medical instruction and even at the present day, when medical education is planned on a broader and more complete basis and a higher standard of attainments is required it is questionable whether these diseases receive the recognition their superior importance demands.

Fifteen years ago I had occasion to investigate the provisions made in the various medical colleges of this country for the teaching of venereal diseases. The catalogues of 75 of the leading medical institutions were carefully examined with reference to this point. In the departments of "Genito-Urinary" and "Venereal Diseases" there were 24 professors, 4 clinical professors, 6 lecturers and 6 instructors. In less than one-half of these colleges there was no special provision made for this instruction; in only two or three was a single question allowed by the professor in this department to test the knowledge of the student; in all these studies were elective and not essential to meet the requirements of graduation. It may be said that this is ancient history, but it is to be remembered that the large proportion of physicians in active practice to-day were graduated prior to this period and that it is exceedingly questionable whether they have kept pace with the advances made in our knowledge of those diseases since then.

At the present day conditions are improved. Almost all medical schools have a department of venereology. Many of them allow one or two questions upon syphilis or some phase of gonococcus infection to the student, but in most of them these studies are not obligatory and a necessary condition of graduation.

The system of instruction as at present organized in most of our medical colleges is defective in another regard, viz., the absence of proper clinical facilities for the practical treating of these diseases. Such facilities exist only in our large centers of population, and as a result the greater number of students are not fitted by a thorough practical training for the ready recognition and intelligent management of these cases when met with in practice.

Is it surprising in view of this defective practical training that so many mistakes are made in the differentiation of venereal sores, that in the presence of skin eruptions the diagnosis of syphilis furnishes a ready refuge for ignorance that patients are carelessly, often wrongly, condemned to a long course of specific treatment and that so many physicians lightly sanction the marriage of uncured venereal patients, which may mean the sacrifice of the health and life of innocent individuals. Referring to the fatal carelessness of physicians in this regard, Jullien says: "Should the qualification, guilty, be applied to the large number of men who unconsciously soil their wives at the first approach? When the responsibilities are well examined into it is to the neglect or incompetence of the physician that they should be ascribed. If he has made an insufficient examination, if he has been satisfied with a rapid inspection or even if deceived by false traditions, he has advised marriage in order to cure the goutte militaire, he alone is guilty."

Let us glance at a few items in the pathological balance sheet of venereal infection. It is the cause direct or indirect of fully one-eighth of all diseases which afflict humanity. It invades the domain of almost every branch of pathology, it furnishes a large contingent of morbidity in the practice of the surgeon, the neurologist, the gynecologist, the eye and nose, throat and other specialties.

Leaving out of consideration the superficial secondary accidents and taking only lesions which may involve or compromise the integrity of important organs we may place to the debit side of syphilis 90 per cent., of all cases of locomotor ataxia, more than 75 per cent., of all ocular paralyses, a considerable percentage of cases of iritis, choroiditis and retinitis, a large but indeterminate proportion of general paralysis, paraplegia and hemiplegia; 80 per cent. of all cases of paresis have a history of syphilis; every hemiplegia occuring in men under forty years of age not addicted to alcohol is of syphilitic origin. This does not include its morbid determinations to the heart, kidneys and other organs.

The bill of its hereditary morbidity and mortality is much larger. Syphilis causes 42 per cent. of all abortions, 60 to eighty per cent. of syphilitic children die *in utero* or shortly after birth. Those that survive are the subjects of dystrophies and degenerative changes, physical and mental, which make of them inferior beings unfit for the combat of life.

The pathological liabilities of gonococcus infection are scarcely less formidable. Passing by the local inflammations, the articular and systemic complications in the male, let us consider only those results of infection which go to make up the saddest chapter in the martyrology of married women. The undeniable and scientifically demonstrated danger of gonococcus infection in women is that it causes 80 per cent. of all deaths from inflammatory diseases peculiar to women—practically all the pus tubes, more than 75 per cent. of the suppurative pelvic inflammations, and 50 per cent. of all gynecological operations performed by surgeons, to say nothing of the large number of women who drag out a miserable existence of invalidism.

Its effects upon pregnancy and conceptional capacity are most disastrous, 20 to 30 per cent. of gonorrheally infected women abort, from 45 to 50 per cent. are rendered irrevocably sterile.

The social dangers following gonococcus infection in woman are not limited to its effects upon her health and productive energy, but are manifested further in the infective risks to her offspring—80 per cent. of the blindness of the newborn and 20 per cent. of this terrible affliction from all causes is due to gonococcus infection, as well as the large proportion of vulvovaginitis and joint affections occurring in children.

And yet these diseases which are met with in some of their forms or manifestations at almost every turn in practice, and which are so important from both a medical and social point of view, are even to-day a neglected branch of medical education. Undoubtedly the student learns

something of the remote results of syphilis and certain phases of gonococcus infection in connection with the pathology of general diseases, but the point I wish to make is, that a fundamental knowledge of these diseases, their diagnosis, the period of their contagious and transmissive activity, the importance of their treatment when acute and curable, their significance as a social danger and their important relations with marriage, does not form an integral or essential part of medical education.

In conclusion, brief reference may be made to the attitude of the public toward these diseases and their prophylaxis and the responsibility of the medical profession therefor.

We chide the public for that ridiculous prudery which looks upon education in sexual hygiene as not proper, as demoralizing, even, for the young, and for that traditional prejudice which surrounds sexual diseases with an atmosphere of shame. From the standpoint of science there can be no greater satire upon creative wisdom than the idea that the knowledge of the organs than transmit life is shameful, or that the education which would lead young men to live according to the physiologic laws of a healthy nature is profane. But we may ask, is the medical profession free from this mental atavism? How many physicians instruct their own children in these matters?

We censure the public for its insensibility to the significance of the venereal peril, its indifference, its hostility even, to measures of prevention. Does not the public take its cue from the attitude of the sanitary officials who are charged with the health of the people and yet entirely ignore the existence of these diseases, and in all their schemes of sanitation pass them by as a negligible quantity? Are not these diseases excluded from our hospitals when they are acute and curable and most dangerous as a source of contagion to others?

We condemn the public for its disposition to cover up and conceal this evil—for the spirit of *ostrichism*, if I may be allowed to coin a word, which shuts its eyes to the danger that threatens the social body from this source. Is it not the spirit as well as the practice of the medical profession to draw a veil of concealment over these infections which ramify through every rank and class of our social life? Is it not this same policy of concealment manifest in the employment of a nomenclature which conceals the identity of these diseases in our hospital records and renders impossible the collection of statistics, private or public, showing the enormous extent of venereal morbidity, as well as its mortality?

Further, and here we approach delicate ground, does not the medical profession in drawing around these diseases the sacred circle of the medical secret which protects them from the notification demanded by the law and the interests of sanitation—which relaxes none of its rigor in the presence of a crime about to be committed, when, for example, a syphilitic man is about to marry an innocent woman with the practical certainty of infecting her, and the physician is powerless to utter a word to protect her from this terrible fate—carry this concealment to the extremest limit. Unquestionably the shame of these diseases, which gives force and efficacy to the medical secret, constitutes the most powerful obstacle to the enlightenment of the public, to prophylaxis by treatment, to the safeguarding of marriage and to the application of sanitary measures of control.

With the irruption of syphilis in Europe at the close of the fifteenth century these diseases were christened with a baptism of shame and with the dawn of the twentieth century civilization the stigma still clings to them, and this, in face of the fact that there is, in the aggregate, more venereal infection to-day among virtuous wives than among professional prostitutes. In the estimation of the public the odium of immorality is almost universally attached to the bearer of venereal disease.

From a scientific standpoint morality does not qualify disease—certainly the taint of immorality cannot attach to the thousands of innocent women and children who receive this infection in a relation which typifies and illustrates our highest conception of virtue. The medical profession should rise superior to this insensate prejudice and convince the public both by teaching and example that while venereal disease is always a misfortune to be guarded against, it is not necessarily a merited punishment—and when this is accomplished an enlightened public sentiment will doubtless sanction the placing of these diseases on the same plane of sanitary control as tuberculosis and other infectious diseases dengerous to the public health.

From these and other considerations which might be adduced, I believe that the educational reform which it is the object of this Society to inaugurate should commence in the ranks of the medical profession. This reform should be basic; it should begin in our medical educational centers, so that the oncoming generation of medical men, thoroughly instructed in a knowledge of these diseases in all their relations, fully appreciating their significance as a social danger and impressed with a sense of their own responsibility as guardians of the public health, shall be active, ardent and capable progagandists of the principles of prophylaxis advocated by this Society.

I am fully aware that the Jeremiad is the most unpopular form of medical paper, but it is hardly necessary for me to say that these reflections have not been submitted in a captious or hypercritical spirit, they are offered from the conviction that an honest confession is good for the soul, and with the hope that the beam may be removed from the professional eye in order that it may see clearly to cast out the mote from the public eye.

THE BEST WAY TO TREAT THE SOCIAL EVIL.[1]

BY HOWARD A. KELLY, M.D.,
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I COME here to-day in hearty sympathy with all the members of this body in their expressed purpose to study the extent of the social evil; to determine the best course of action by which to check or to suppress its ravages; to make these facts known as soon as ascertained; and to take all the necessary steps to secure, at any cost, the cooperation in the campaign of every citizen in the land.

The proper order of treatment for this subject is: (1) Investigation of the facts; (2) Deliberation upon them in order to determine the best plan for an aggressive campaign; (3) The institution and maintenance of the campaign thus planned.

I would urge that we keep this classification of aims constantly before our minds, for while the experience of other countries shows us that we may proceed to best advantage by attacking the subject along two or three avenues concurrently, we must, at the same time, remember that it does not answer to rush into action too far ahead of investigation and verification. Any gross violation of this rule must inevitably result in waste of effort, exposure to just criticism, and estrangement from friends of the movement. Moreover, we must always remember that we are dealing with our own flesh and blood, and that misdirected effort results, not like chemical failure, in total destruction, but in the production of untold misery, most of which falls to the lot of that most pitiable of all classes, the prostitute.

Let me aid you this evening by helping you to gather a few data from the experience of other countries on the question under consideration and to utilize them in selection of the best channels into which, after deliberation and reflection, it is best to direct our energies.

I may say at once that it is a fond delusion of the human mind to look to legislation for the relief of that which has its roots in the nature and passions of men and women. All true and lasting reform must spring from the hearts of the people, and the spectacle of a large body of men trying to purge this evil from our midst by law-making, makes me think of a story I have heard concerning an amiable and accommodating legislature in Kentucky. The members had too much old-fashioned Southern courtesy to refuse the earnest petition of a gentle old lady, oppressed by the evils of cigarrette smoking, that they would do something toward its removal; so they gallantly passed a peremptory law abolishing the cigarette! I have not verified this story, but, as the Italians say, *si non è vero, è ben trovato*, and it is an excellent illustration of my point, for it is true to nature—to American nature, at least.

[1] Address delivered before the Society of Sanitary and Moral Prophylaxis, New York, May 19, 1905.

Legislation against the social evil has, until recently, taken the form of what is generally known as regulation of prostitution, or, less speciously, the legislation of vice. The moral and religious grounds for objection to such a plan are of the strongest kind. There is, however, another argument against it of a practical nature, namely, its total failure to purge the public health to any notable extent of the diseases, syphilis and gonorrhea. I should like then at the outset to say a few words signalizing the total failure attending the legalization of vice as tried by our own race.

In 1864 a bill regulating prostitution was introduced into Great Britain, under the title the Contagious Diseases Acts, the measures for its introduction, its opponents claim, having been rushed through parliament with so little explanation that many persons, deceived by the title, believed that it was a bill introducing measures to check the diseases of cattle, a subject, at that time, attracting much attention.

The provision of this Act, in the words of one of its supporters, were these: "This statute provided in substance that on information being laid before a justice of the peace by a policeman or by a medical practitioner, stating that he had good reason to believe that a woman was a common prostitute and infected with venereal disease, the justice could order her to be taken to a certified hospital for examination." Provision was also made for what is known as "voluntary submission" on the part of the woman. This first Act did not, like subsequent ones, compel examination; it imposed penalties, however, on women who refused examination, or who quitted hospitals without being discharged. It also provided for the establishment of hospitals for the free treatment of prostitutes, in which they were required to remain until discharged, and which were, for this reason, called lock hospitals.

In the same article the writer says "As the directly utilitarian purpose of the Acts has reference to our army and navy, and as their effect could be better tested among a population about whose comings and goings everything was known, the operation of the Acts was confined to certain specified military stations where troops were collected in considerable numbers (*Med. Press and Circular*, May 10, 1888).

The terms of this Act were similar to those in force in some other countries, except that they were less severe. Their rigor was subsequently increased in Great Britain, and the examination was made compulsory, that is to say that the woman who refused could be imprisoned at the discretion of the magistrate.

Let us now see what has been the effect the passage of these Acts upon the public health, that is to say, what effect they have had upon the spread of venereal disease in the British Army, for which purpose they were devised.

The committee appointed in 1882 to inquire

into their efficiency, reported as follows: Primary lesions—showed a reduction, though not a considerable one; gonorrhea—showed a slight increase; secondary syphilis—statistical difficulties were here experienced, as the disease is often acquired at one point and developed at another. Two different sets of calculations were published on different occasions, the first showing a slight reduction in secondary syphilis in the protected stations as compared with the unprotected, while the second set announced an actual increase of disease in the protected over the unprotected; evidence was also adduced to show that the disease in protected stations was more severe. Lack of time forbids me to enter into the discussion which the difference between these two sets of figures provoked. I can only say that there is at least equal reason to accept the second set as correct, and at all events the rate of improvement claimed by the other was but slight. This act was repealed in 1886, having been in action from 1868 to 1886, with sundry modifications, introduced at different times during this period.

The Contagious Diseases Acts in Great Britain, therefore, may be said to have been a failure so far as showing any notable results in fulfilment of the purpose for which they were executed, which was, in the words of the Royal Commission, "to control the conduct of prostitution so as to render the practice of prostitution, if not absolutely innocuous, at least much less dangerous" (*Rep. of the Roy. Comm.*, 1870, sec. 13, p. 4.)

Let us now briefly consider why the Contagious Diseases Acts were a failure in Great Britain. First of all, as Dr. Charles Bell Taylor says, for the fundamental reason that of two propagators of disease you only treat one. "What would you think of our Medical Health officer if he proposed to stamp out scarlet fever by segregating girls, while little boys, in an infected condition, mind you, were sent to school or allowed to play about the streets? What would you think of him if he proposed to stamp out the cattle plague by slaughtering heifers while young bulls were allowed to spread infection all over the country? What would you think of him if he proposed to limit smallpox by vaccinating females only? . . . A sanitary law applicable to one sex only is not only a cruel injustice, but a mockery, a delusion and a snare." (Speech before the House of Commons, February, 1883.

(2) Because it is impossible to get more than a small percentage of the women to submit to the examinations, for, however rigorous the regulations, they succeed in evading them in every possible way. In Paris, about 1883, the *chef de mœurs* stated that there were actually in the city between thirty and fifty thousand prostitutes, but only 3,500 of them were registered. The remainder were "clandestine prostitutes," a class most especially to be dreaded as disseminators of disease, because, as they rarely apply for treatment, they are seldom cured. More recent evidence of the same kind is furnished by Dr. Lautand, of the St. Lazare Hospital, in the *Journal de Médicine* for September, 1897. He states that all doctors who have studied the question of prostitution in Paris during the last thirty years are unanimous in agreeing that the number of women on the register is constantly diminishing, while the number of clandestine prostitutes is always increasing. In 1847 the number of women on the register was 3,000; in 1895, in spite of the increase of population, it was only 2,000, whereas the number of clandestine prostitutes, that is, women who occasionally, or habitually practise prostitution, was, he estimates, at least 300,000 (*Westminster Review*, December, 1899, p. 608).

(3) It is impossible to examine any large number of women often enough to prevent disease from spreading. Once a fortnight is the usually specified interval, but any woman acquiring the disease immediately after examination, will communicate it during the two weeks intervening before her next examination. Furthermore, it is difficult, and sometimes impossible for even a skilled examiner to determine at one, and that usually a hurried examination, whether a woman is infected or not. The microscope is the arbiter in gonorrhea, but for this the requisite skill is often wanting, even if the time and facilities necessary for using it are present. Even when the lesions are unmistakable, they often escape detection, because the women themselves become experts in the art of concealing them. Dr. Taylor says: "I know of a druggist in one garrison town who is (1888) making an excellent income by preparing women for examination, an industry for which, in addition to licensed prostitution, we are indebted to the promoters of this scheme" (*loc. cit.*).

(4) Still another reason against the possibility of such examinations being effectual in controlling venereal disease is the rapidity with which it must be conducted, owing to the large number of women and the insufficient supply of doctors. Dr. Frederic Griffith, writing of his observations in Paris (*New York Medical Record*, April, 1904), states that he has known four hundred women examined in an hour and a half! What a prostitution of the medical profesion!

(5) It is frequently impossible to examine a woman even if she presents herself at the time appointed, because she is menstruating. In the letters of the four Honorary Surgeons of the Albert Hospital to the Lords of the Admiralty, it is shown that 2,110 women were not examined in one year for this reason. During the thirteen weeks ending August 28, 1869, a weekly average of 52 was not examined, owing to this cause alone. It is also stated that at one station 30 women in one day were not examined on account of menstruation. Moreover, many women wait until they are menstruating in order to evade

the examination, and others make use of a stain to simulate menstruation in order to secure the same end.

(6) Furthermore, a woman who has had syphilis is protected against future fresh attacks, yet if she continues to associate with infected men she spreads the disease by mediate contagion, though she shows no signs of it herself.

(7) Finally, systematic regulation and examination is a failure because it demands as a *sine qua non* to its success the hearty cooperation of both parties, the prostitute and the medical man, while, as a matter of fact, neither side is willing to do its part in the affair, far less both. On the part of the medical man the system is certain to degenerate into a devilish, political, money-making scheme, associated with bribery and all sorts of debauchery, inevitably degrading a profession which has always stood higher than almost any other. To the prostitute it is a high-handed piece of brigandage and an infringement on that "liberty" which she values as her life, to be resisted at all times and by every possible device and subterfuge.

A recent writer on the Contagious Diseases' Acts is clearly right when he says "It is evident . . . that it is *absolutely impossible* to make prostitution safe. That by a sanitary law applicable to one sex only, it can never be brought under control. *That the danger from mediate contagion is insuperable.* That the examinations are worse than useless. That they spread disease. That the whole system, by giving men inducement and a false sense of security is a fruitful source of injury to the innocent wives and children we are so earnestly called on to protect. (*Westminster Review*, Feb., 1900, p. 135).

These are the reasons why the system of legalized prostitution is a failure; let us now inquire into its effects upon the public. I do not here discuss the moral and religious aspects of the question—I confine myself, with intention, to its practical side.

It has been claimed that the system of regulating prostitution has a reforming influence. The evidence of matrons, chaplains, and other officials connected with lock hospitals is positive that this is not true, moreover, it is stated that syphilis among prostitutes in Great Britain increased from 148 per cent. in 1870, to 176 per cent. in 1880, a period when the Acts were in full operation (Speech by Dr. Charles Bell Taylor, *loc. cit.*). Also it has been found that in the Royal Albert Hospital at Devenport, an institution described as being "in the very citadel of the disease" 50 per cent. of the women, who under the voluntary system left there to enter reformatories, dwindled after the passage of the Acts to 13 per cent. (*Westminster Review*, February, 1900, p. 144.)

The reason for this is the fact that the system of regulation is in itself an obstacle to the reformation of a woman leading an immoral life. The unregistered prostitute can reform without having to contend against the disadvantage of her previous life being known, but let her once enter the Government lists and she has placed in her path an insuperable difficulty. It has been well said that over the door of the registration hall stands the motto written by Dante over the gates of Hell "*Lasciate ogni speranza, voi ch'entrate.*"

Dr. Mireur, of Marseilles, in his work on "Prostitution," remarks: "The system of legislation which regulates and legislates the sorrowful trade of the prostitute is, in fact, the sinister stroke by which women are cut off from society, and after which they no longer belong to themselves, but become merely the thing of the administration. They are cut off, not from society only, but from heaven, from hope, and from the power to repent."

Yet more, the terms of all regulations for prostitution are so worded as to leave a wide opportunity for use in such a manner as to inflict an actual injury upon women endeavoring to reform, and drive them back to their former life. The following incident, related by Kingsford in his excellent little book "A critical summary of the evidence before the Royal Commission upon the Contagious Acts" is a case in point.

"Jane Featherston, having refused to sign a voluntary submission, was subjected in April, 1870, to periodical examination by an order from the Canterbury magistrates, and the police ordered her to attend on April 29. She at once left the district and placed herself and her children under the case of the Rescue Society in London. The Society shortly found for her a respectable situation in London; she remained in that situation for eight months and then married. Meanwhile, for not having gone up for examination on April 29, as ordered, the Canterbury magistrate had, in her absence, sentenced her to seven days imprisonment with hard labor and a warrant for her commitment, dated May 2, was placed in the hands of the police. In February, 1871, immediately after her marriage, Jane and her husband went to Canterbury to see her children, then in an orphanage there. On Saturday night, February 4, 1871, Jane, while walking with her husband in the streets of Canterbury, was apprehended by the police (to whom her husband in vain showed his marriage certificate), locked up until Monday, and then sent to Maidstone jail, where she underwent the old sentence of seven days imprisonment with hard labor."

Any law of this kind, no matter how carefully administered, must be open, not only to the abuses just mentioned, but to an even worse evil, namely, the registration and compulsory examination of women who are not diseased, or who may be entirely innocent. All the Acts required was that a policeman or a medical man should lodge information that a certain woman was "*in his opinion*" a common prostitute and

that she was diseased, and she was at once absolutely in the hands of the law. She might deny the charge, it is true, but her fate rested with the police and the magistrate. Would you intrust the person of your New York women to this class? I think not. You well know that here in New York City the policeman on his beat is often a greater autocrat than the Czar of Russia; shall we trust the police of New York, Philadelphia, St. Louis, Chicago and San Francisco, with such power? Again, within a few years it has transpired, during the course of a celebrated French murder trial at Lille, that a number of ruffians pretending to be policemen, had outraged over 500 respectable women.

Moreover, at the time the Contagious diseases Acts were in action in Great Britain the magistrate might do what he was not allowed to do in any other class of cases, namely, hear the evidence behind closed doors, so that the defendant could not, like any other accused, depend on the protection of the public against injustice, through the medium of the public press. In fact, the regulations of prostitution in every country would seem to be constructed on the principle that a prostitute is so lost to every sense of decency that sentiments of common humanity are superfluous in dealing with her.

I hope I have said enough to show how great are the abuses to which any system of regulated prostitution is liable. I shall not pause to cite any of the heart-breaking incidents on record of the sacrifice of reputation, of reason, and even of life itself in innocent persons through its unmerciful administration, with one exception, taken from the *Westminster Review* for February, 1900, in the last of the series of articles upon the failure of the Acts. A poor woman, living in lodgings, was watching a sick child late at night, when, suddenly fearing the child was dying, she hurried into the street to fetch a doctor. On the way she was seized by an *agent de mœurs*. "Let me go," she cried, "my child is dying." "Oh, we know all about that," was the answer, and the man dragged her to St. Lazare. Here she was incarcerated with a number of women under suspicion of practising clandestine prostitution. She screamed, struggled, and implored release, and, at last, as she would not be quiet, she was put in the padded room, where she went mad. From there, a raving maniac, she was sent to the Salpetrière, where she died three weeks later. The child died also.

In the foregoing discussion I have taken my information largely from the facts disclosed concerning the C. D. A. in Great Britain.

In 1868 a C. D. A. was introduced into British India, and although suspended in 1888, it was reintroduced in 1889, as the "Cantonments Acts." The system prevails here under its worst form. The government actually hires houses (*chaklers*), provides women on salaries to conduct them (*mahaldarnis*), and although it does not, so far as I know, actually send out agents to procure women for prostitution, its conduct is tantamount to this, for it encourages a class of men who engage in this profitable industry. These panderers to vice find a rich harvest among the unfortunate class, the child-widows, who, saved by the Government from the Suttee, the time-honored cremation upon their husbands funeral pyres, are left utterly defenseless against the worse fate of being, through social custom and deeply-rooted prejudice, so despised that they are readily sold into Governmental prostitution. A distinguished native, Pandita Ramabai, testified to the results of this system in her "Story of my Life," 1900, p. 153: "The Contagious Diseases Acts, which has again come into force under the name of Cantonments Acts, is a great power on the side of the devil, and enables wicked people to carry on their evil traffic in girls for the benefit of British soldiers. Missionaries and others in their rescue work have found it much more difficult to get girls than to gather boys from the famine districts. Men and women who are engaged in this traffic in flesh and blood were very busy for months gathering girls before any other of the relief works and poor-houses were started. Whenever they saw any of the Christian people, coming to the rescue of the girls, they started such dreadful stories about Christians, that in many cases the girls refused to place themselves in charge of Christian Schools and have gone to their destruction."

As to the success of the Acts in India, I will call attention to the Sanitary Report on India for 1884-5, presented to Parliament in 1886, "Active police and lock hospitals precautions have been in force everywhere and special attention was drawn by us formerly to the apparent success of these measures in Bombay. But the statistics show that, including the period before and after the precautions were introduced, the syphilitic rate has increased from a ten years' average (1870-1879) of 191 per 1,000 to 292 per 1,000 in 1884. Madras is supposed to have an efficient police and a Lock Hospital system, and yet in 1884 its venereal admissions were 485 per 1,000." The Sanitary Report for 1885-6, published in 1887, says: "Each year witnesses to an increase in admissions from venereal disease. From all forms of disease the admissions per 1,000 of strength in 1885 were 343 against 294 in 1884. At all the stations in Bengal, except Barrakpore, the number of registered women found diseased at the periodical examinations and detained in hospital for treatment was greater than in 1884."

As to the system of legalization prostitution in Continental countries—Germany seems to be in the anomalous position of forbidding prostitution by law and then of attempting to regulate it and wink at it.

In regard to France, I will only pause to say that Fournier, the great syphilographer, charac-

terizes the system of regulation there as "*insuffissante, impuissante, et caduque.*" Has syphilis," he says, "ever diminished in frequency during the forty years during which I have made it the subject of my investigations? It is impossible for me to believe that it has after what I have witnessed with my own eyes. Has it, on the contrary, increased in frequency? I, myself, firmly believe that it has done so.

Syphilis, Monsieur Fournier continues, is flourishing in Paris to-day, it abounds and superabounds; the special hospitals are not large enough for the numerous cases, which overflow into the general hospitals. All this, he adds, shows how impotent are the *police de mœurs* so far as the repression of syphilis is concerned. These sentiments are all the more interesting as Fournier was once a strong supporter of the French system.

It may be asked whether, if the inhabitants of Paris, or of other cities, are so badly off with their system, would they not be worse off without it? There is every reason to believe that they would be better off with a voluntary system of hospital treatment.

And yet, with all this evidence that the system of legalized prostitution is effete, it is now proposed to introduce it into Honolulu, and to repeat in a country but recently civilized, the evils and abuses which have been proved to exist in an older, better regulated civilization.

And now as to the remedy for this evil in our midst. As I have said elsewhere ("Right Attitude of the Medical Profession toward the Social Evil," *Journal American Medical Association*, March 4, 1905) but three attitudes are possible, namely:

(1) Indifference; (2) governmental control; (3) an active personal crusade.

(1) Indifference, the attitude of the country up to the present day, has proved a total failure. Under indifference, disease and crime flourish on all sides, and it is indifference, not any system of regulation, which has necessitated this gathering to-night.

(2) Governmental control has been tried in other countries, better regulated than ours, and found ineffectual.

(3) The third plan, an active personal crusade, inspired by a sense of moral responsibility, remains to be tested. But its success depends, not upon collective influences, Vigilance Committees, Social Purity Leagues, etc., powerful adjuvants as they are, but on the quickening of the individual conscience of every man and woman to a profound sense of personal responsibility. Every person within the sound of my voice can contribute to that which is indispensable to the success of this movement toward the suppression of the social evil, namely his own conviction and personal influence. God has so bound us to our fellow creatures that every man is the focus of a little circle which he can influence as no one else can. Our own personal activity, by word no less than by deed, becomes, therefore, a gauge as to the genuineness of our interest; let us then, for a time at least, refrain from trying to shift the responsibility in this matter to the shoulders of legislators in Albany, in Harrisburg, in Annapolis, or in Washington, and let us first demonstrate our sincerity by an earnest personal crusade along the lines of public morals.

Here are some of the essentials in this personal crusade. We must have better provision for the amusement and recreation of our little ones. The city life is being corrupted at its fountain head by want of such prime necessities as playgrounds for our children by means of which we may draw them off from the public streets by offering them more fun and amusement elsewhere. We must provide better ventilation in the homes of the poor. Much of the vice we see around us is bred in the pestilential hothouse atmosphere of dark, dirty, ill-ventilated homes, which induces abnormal cravings in ill-conditioned bodies. Our cities must have more lung spaces, more open areas, where little human plants can bask in the sunshine and exhale the miasm created by close quarters.

Again I say, more air, more sunshine, and more pure water in the homes of the poor. Surely, those who never have an opportunity to escape during the heat of summer to the green fields and the pleasures of the open air, are entitled to a generous share of those blessedly cheap necessities to right and happy living.

We must have more living room in the homes of the poor. Close crowding in our large cities is the source of a great deal of the evil which exists in them. When whole families of six, eight, and even ten persons are crowded into two, or even one bedroom, what chance is there to foster purity? Nay, she is smothered in the birth. Mrs. Lillian W. Betts, in her study of New York tenement life, "The Leaven in a Great City," draws attention in the most forcible manner to this evil. "Privacy is almost impossible in the tenement house home. One bedroom is usually the passage way to the next, if there are two, or both bedrooms are passageways from front to rear of the house and must be used by all the family. Children must grow up in them subject to the limitations, restrictions, and exposures their walls compel. This division of space must fix standards of reserve, of privacy, of social life. No amount of love, nor even of intelligence, can save the children from the evils which such division of space imposes on family life. It deadens the sensibilities. The insidious effects of this are not always realized, even by the intelligent parents, who accept them as inevitable."

The responsibility for this particular evil lies at the door of legislators, owners of real estate, and building inspectors. The landlord is responsible for the conditions under which he makes his tenants live, and he need be no philanthropist

to take a right stand in this matter, for it has been proved that it is possible to construct tenement houses in such a manner as to provide proper light and ventilation, reasonable space, and proper attendance on terms much lower than are usually demanded, and yet to receive a fair profit (four to five per cent.) on the capital invested.

Most important among reforms is the crying need in all our cities for better and more abundant sanitary facilities in the homes of the poor, and also in the factories where they work. The present arrangements are often offensive to the last degree to the sense of modesty and decency, offering opportunities for aggressively evil young men to distress and assault young girls so continually and effectively that the wonder is, not that evil exists, but that so much virtue survives. Moreover, it is true that there are few sources of disease more prolific than the enforced retention in the body of the excreta, which ought to be discharged when nature gives due notice, and should never be allowed to linger and act as foul miasms poisoning all the tissues by reabsorption into the blood.

I quote again on this subject from Mrs. Betts. "One hardly knows whether to laugh or to cry at the inconsistencies of the standards of those who go to Albany to secure the passage of bills for the betterment of the conditions of working people. We have secured a law compelling separate closets for men and women in stores and factories, a righteous measure in the interests of morality. But in the tenements the closets must be used by men, women, and children of several families. A neighborly courtesy is the loaning of the key, to save a weary neighbor a journey up stairs. Children run in from the street, several at a time, for it is the only place provided. This publicity and freedom is the crying evil of the tenements and the one from which tragedies come. The marvel is that so few follow; that in spite, seemingly in defiance, of it all, characters develop that are beautiful, harmonious, true.

"Can one condemn a girl, facing the worst that can befall her, who, under pressure that her necessity justifies, yes, makes necessary, confides that her relations with the man who is the father of her coming child, began when each were little things six or eight years old? A relation that grew out of lack of privacy, the intimacy forced by tenement house conditions. Both families have gone far beyond their social position at the time these two were children, but the blasting of innocency has left its burning scar on the girl, and she must bear the blame alone."

Again, we must recur to that old and yet unrighted evil, the payment of insufficient wages to the mass of women workers. Tens of thousands of our young women in the large cities and in factory towns are so poorly paid that they are constantly under strong temptation to supplement their slender resources in order to buy proper clothes and to enjoy some recreation. Their lives are so arranged that there is a constant object lesson before them as to the ease with which this can be done, if they possess any personal attraction.

I should like to call attention here to the fact that under a system of legalized prostitution the poverty of a working girl may become a source of danger in other ways also. Madame Grandpré, the well-known philanthropist, tells us that some of the *police des mœurs* in Paris have made it a practice to force their way into the rooms of working girls and inquire the amount of their earnings. If a girl mentions a very small sum, the agent will reply, "That is not enough for you to live on, you must be a prostitute; show me your hands." If there are no needle marks on the girl's hands the police will insist that she does no honest work, and although she may protest that she is a florist, a burnisher, or a worker in any trade that does not injure the hands, he can, if he chooses, answer, "No matter, I shall put you on the list and order you for examination" (*Westminister Review*, Feb., 1900, p. 153).

We have also to consider in dealing with this question from a practical point of view, the indifference which men and women in comfortable circumstances display toward the subject. The temptation is great for those who suffer none of those inconveniences and deprivations which their less fortunate fellows endure, to answer when they are reminded of it, "Am I my brother's keeper?" You will remember what was the issue of that question? Does not Cain's next cry strike you with significance when it is considered in relation to the difficulty in which we find ourselves to-day? "My punishment is greater than I can bear."

Our tacitly accepted national motto "Live and let live," has been a devilish one. The fountain of all our woes, political and moral, lies in the lack of personal responsibility on the part of the individual to those with whom he comes in contact—in the lack of any real desire to seek such contact that we may bring a blessing to the lives of others. There is among us no widespread soul hunger to go out and help the need of our fellow men.

I think I speak the truth when I say that class separation has reached such a point that there is nothing the rich so long for to-day as to be entirely freed from the presence of the poor, so as to form a sort of plutocratic society where there shall be nothing offensive, none but their own kind, and no personal contact with those less fortunately situated. This feeling lives at the bottom of the so-called servant problem.

God, however, has graciously and unalterably organized the world on other lines. He has so appointed the conditions of our lives that not one of us can escape from a constant mutual interdependence of all classes. The personal services of the poor must daily invade our doors and penetrate every nook in our houses; if we care for

them in nowise beyond their mere service, woe betide us. Think of these countless currents flowing daily in all our cities from the houses of the poorest into those of the richest, and forming a sort of civic circulatory system expressive of the life of the body politic, a circulation which continually tends to equalize the distribution of morality and of disease. Well has it been said that "no man liveth to himself and no man dieth to himself."

I fear now, in conclusion, that those of you who have given much thought to these things will smile at my naïveté, knowing well by bitter experience that only the illusory dream of youth considers that the statement of a problem is its solution. I am aware that I have not suggested any specific remedy for this intolerable situation. My suggestions thus far have been rather of the order of what I call boot-strap philosophy, that is to say the attempt to fly by catching hold of your boot-straps and pulling hard enough; much like the advice of Mr. Worldly Wiseman to Christian when the latter was sorely troubled by the great burden of sins on his back. "I advise you by all means to get rid of it."

The real difficulty lies in the character of the individuals with whom we have to deal. What power will give control over his passions to a man, who never, from his earliest childhood, has been taught the first principles of self-control?

There is an answer to this question, clear, satisfactory, and very real: and it is the only answer. It is definite faith in God, a faith which leans upon Him at all times for grace and strength to do that which we otherwise could not do. Now, I am sure that if I proclaimed some new *ism*, some fresh system of philosophy by which men were to be elevated, I should have thousands of willing hearers. Then why not come back to the one source of all real strength and of purity, to Him whom our Fathers have tried and never found wanting. The very coins you carry in your pockets and which you give and receive daily proclaim "In God we Trust:" make that trust a real living fact in your lives and then you will be able to bring to the lives of others that which will make for peace, beauty, happiness, and every kind of right living. I stand ready to join hands with my friends in attacking this great problem by any and every right way, but for my own part it must be with the distinct understanding that I am ever seeking to bring those who know Him not, to God, without whom no reform is ever true or lasting.

Bronze Memorial to Dr. E. A. de Schweinitz.—A handsome bronze tablet, 2x3 feet in size, with suitable inscription, has been placed in the main hall of the Department of Medicine, George Washington University, to the memory of the late Dr. E. A. de Schweinitz, who at the time of his death was Dean and Professor of Chemistry and Toxicology. This tablet was erected by members of the faculty and by the medical and dental classes of 1904, 1905, 1906, and 1907.

THE PROPHYLACTIC VALUE OF NORMAL MARRIAGE.

BY ANDREW H. SMITH, M.D.,
OF NEW YORK.

THEORETICALLY the preventive against the evils this society is formed to combat is marriage, and so much reliance is placed upon this that but for the lessons of every-day observation we might be inclined to dismiss the offender and the subject with the injunction: "Marry and sin no more!" Indeed, this seems to have been the course advocated by St. Paul, whose prophylactic prescription was "Let every man have his own wife, and let every woman have her own husband."

But in monogamous nations the world has had the benefit of this prescription since centuries before the time of St. Paul, and yet these evils continue to exist, and in such an appalling degree as to call for legislative "regulation of vice," "lock hospitals" and more stringency in divorce laws, and all these failing, for the formation of societies such as our own. Nor is it that the remedy is not applied. All over the civilized world the marriage bells never cease to jingle or jangle, as the case may be, but the relief is not yet. Obviously from this point of view, at least, marriage is a failure.

But a very cursory examination of the subject will show that there are two kinds of marriage, and that it makes all the difference in the world which kind is under consideration.

Marriage is either *normal* or *abnormal*. The former I would define as the union between a man and a woman, both in sexual health, which union is prompted in the first instance by the natural inclination of the two sexes, one to another, and is determined in each particular case by the presence in each person of qualities that excite the admiration, esteem and affection of the other. Normal marriage must have a physical, or, if you choose, a physiological, basis in the sexual instinct. A platonic affection, no matter how deep or strong, could never result in a normal union, nor could a union dictated by policy alone ever be otherwise than abnormal.

Starting then, from this basis of instinct, normal marriage grows out of reciprocal appreciation of qualities that are mutually pleasing and attractive; qualities in each that in the estimation of the other sets him or her apart as the object of an exclusive regard, and as filling a place that no other person can occupy.

Persons so united may be expected to find such physical and psychical satisfaction in each other as will not only keep them true to the marriage tie, but will illustrate the highest and most abiding type of human affection. And this is commonly the case. The picture of Darby and Joan is one we see daily in real life. Such marriage has been glorified by being selected to typify the union of Christ with His Church.

Now, in the education of young persons of either sex, normal marriage should be presented

as the natural prospect before them, as the thing that more than anything else will bring them happiness—the thing absolutely most important in their lives; a thing most solemn, most sacred, a thing that is to determine their earthly destinies and to influence their posterity for all generations. Particularly should this be impressed upon the young man, and his mind should be imbued with high ideals in connection with the subject.

He should be reminded that some time he will ask for the hand of a young woman in whom he will expect absolute purity—purity in thought, purity in word, purity in deed; that every chivalric sentiment should revolt at the thought of laying at her feet a life less pure than that he expects of her, that as he would smite to the earth one who would question her stainlessness, so he would challenge his own heart as her stainless knight, and pass judgment upon himself if he did not meet the ordeal.

The young should be taught that the man who would sell himself for money or the woman who would sell herself for a title has hopelessly degraded the higher nature, and is shut out from the aristocracy of self-respect.

Normal marriage could thus be made to cast its light before; and the youth trained in chivalric ideas would keep himself pure for the, as yet unknown, mistress of his heart. Purity of thought carries with it physical purity, and to this he would be the farther stimulated by regard for posterity, to whom he would wish to transmit not only untainted blood, but also unsullied traditions. In this he would only be following at a distance the Japanese, who, in worshipping his ancestors, realizes that he in turn is to be worshipped by those who come after him, and deems that death by his own hand is the only expiation that can avert a stain upon the succession if he prove unworthy.

The fact of normal marriage being such a protective influence is a powerful argument for early marriage. The sooner a young man comes under its ægis, the more likely he will be to pass through early manhood unsullied. But early marriage is often impracticable, and in such cases I am an earnest advocate of early engagements. How a young man is carried safely through university life, including perhaps a period of residence among the corrupting influences of European capitals, simply because of a pure attachment for a pure maiden who trusts him, any one who has had the opportunity to observe, or has perhaps himself experienced, need not be told. And if there is anything on earth that Heaven smiles upon, it is an influence like this.

But let us look for a moment at the other kind of marriage, the abnormal. As the one we have just been considering is physiological, this is essentially pathological. Very often the physical basis is wanting on one side or the other, or if present exists in a perverted and perhaps a repulsive form. Very often it has gone down in the general wreck which disease has left. At the best, it is not supplemented by any personal qualities that attract the respective parties to each other. The only end in view is a sordid one, based upon the expectation by each of material or social advantage to be gained at the expense of the other. This expectation is commonly disappointed, and the yoke which it was thought might be endurable becomes day by day more irksome, and at last is thrown off entirely. Indifference is now exchanged for animosity, and not infrequently disregard for public criticism opens the way to the gratification of every passing fancy until nothing but a moral and social wreck remains. True, if there is money it may buy a divorce and perhaps buy another partner. It may also preempt a place in the ranks of the gilded nastiness known as the fast set, and thus the maleficent influence is reinforced.

This kind of marriage is perhaps as potent for evil as is the other for good. It were far better for public morals if the parties to it remained single, and stood before the world for what they were, rather than that they should degrade the noblest of human relations to the meanest of human ends.

And now a word especially for mothers. The young girl should be taught by her mother the dignity and sanctity of normal marriage, and the degradation and the physical danger of abnormal marriage. As to the latter point it should be explained to her that innocent wives by thousands receive from infected husbands diseases of a wellnigh incurable character, that not only make their lives permanently wretched, but will descend inevitably to any children they may bear. Let her be taught to distrust a man who talks flippantly about marriage, or whose bearing toward the opposite sex is other than that of respectful deference. Romantic young women are apt to see an embodiment of chivalry in any good-looking man who seeks their acquaintance, and they should be made to promise not to allow themselves to become in the slightest degree interested in any man without the knowledge of their parents.

Upon the first sign that a man has singled out their daughter for special attention that man should be required to desist from his attentions until he shall have satisfied the father as to his freedom from venereal taint. An attempt to evade this issue should be accepted as a confession of guilt, and the turpitude of such evasion should be brought home to the daughter's consciousness. If the girl has previously had the matter presented to her in the abstract she can be depended upon to act wisely when the concrete illustration is put before her, whereas, without such previous teaching, her course could not be predicted.

Normal marriage is the strongest influence that exists as a preventive of immorality and of the diseased conditions growing out of immorality. But it is only when it is broadly differen-

tiated from marriage in general, and placed in contrast with abnormal marriage that we fully appreciate its prophylactic value.

That that value can be greatly enhanced by a general dissemination of information upon subjects most important, but about which the public is most ignorant, is the chief *raison d'etre* of this and similar societies. That the young can be trained to higher ideals in this regard, and that a weighty obligation rests upon those whose office this is; that the time has come when false ideas of modesty must give way to the plain duty of protecting the innocent and guarding the unwary and exposing the infamous; that the remedy for existing social evils lies in education rather than in legislation; these are the convictions which it is the object of this paper to present, and upon which I would most earnestly insist. A great deal will have been accomplished from the moment when it shall generally be conceded that these are legitimate subjects for public discussion.

THE NEED OF SEXUAL EDUCATION.

BY E. L. KEYES, JR., M.D., PH.D.,
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A FEW weeks ago I had the pleasure of listening to a discussion of the ways and means of preventing certain diseases, and toward the end of the evening a clerical gentleman, the pastor of many souls, arose and with every intention, I believe, of rendering the medical profession a sincere compliment, told us that if we would only busy ourselves about the prevention of other diseases as well as those under discussion, there would soon be none left. He evidently thought that the idea of prophylaxis was then and there for the first time seeing the light, and he wished to hurry along and help warm the baby.

Such is the ignorance of enlightened men. Such, I venture to state, is the ignorance of you and me upon the present trend of theological opinion; but God forbid us the temerity to exhibit that ignorance in public!

But, on the other hand, you know a great deal about preventive medicine. Doubtless many of you can recite the names and deeds of the prophylactic hierarchy from Jenner down to Reed much better than I can. Yet I have come here to-night to enlighten some of you, to encourage all of you, to lend a helping hand in the youngest branch of the young science of prophylaxis. I appeal for the prophylaxis of venereal diseases.

Inasmuch as this subject must be entirely new to a great number among you, I take the liberty of treating the elements of the question, with due apology to those who already know.

In the first place, let me assure you of the importance of the venereal peril. On syphilis I need scarcely insist; for you surely appreciate not only the lesions of bone and brain produced by that disease, but also the tragic horror which so often afflicts the patient who is told—as he must be told—that he never can be absolutely and infallibly assured that his disease is ended. Yet the frequency of syphilis perhaps you do not all appreciate. What has impressed me most is, not the statistics that tell how one in ten New Yorkers, or one in four unmarried males, aged thirty years, in Berlin, is syphilitic. Such estimates are large and vague and doubtless inaccurate; they do not grip one. But consider rather the fact that very many of our more aristocratic patients acquire their disease from what one might term an unimpeachable source. Tell them they have chancre, and they retort, "It is impossible." They do not deny sexual contact, but they do deny the possibility of contamination from so unsullied a source. They would deny that one who is kind to two may be generous to twenty; they maintain an exception to the law that "No woman, however beautiful, can give what she has not got."

Such fatuousness may make you smile, gentlemen; but 'tis no joke for 'a that.

Another proof, perhaps even more forceful, of the frequency of syphilis has been often called to my attention by my associate, Dr. Chetwood. It is his custom to read the riot act to those casual youths who return again and again suffering from gonorrhea, telling them, "Young man, if you keep on, in less than three years you will be back here with syphilis!" and sure enough, in the great majority of cases, three years do not roll by ere they prove the prophecy correct.

From these facts one may conclude that illicit intercourse is never safe from the danger of syphilis, while promiscuity invites it almost to a certainty.

But gonorrhea is the rock upon which we split. Its frequency we all admit; but its importance—its great importance—as a destroyer of health and home is not appreciated as it should be. But to discuss this subject, which has been often and ably discussed already, would lead us too far afield. Let us only paraphrase the saying of Ricord, "A clap begins and God only knows when or where it will end."

They wreck many lives, do these venereal diseases. Think of the tabetics in our streets, the paretics in our asylums, the dead or disfigured children; think of the laparotomies for pus tube that occur daily in our hospitals; think of the impotence, the sterility, the sexual neurasthenia that fill our offices with vagrants wandering from physician to quack and back again in the vain hope of a cure!

Think of all this, and tell me why this suffering? Why these loathsome diseases? The answer is easy: Because of promiscuous sexual congress. And why promiscuous sexual congress? Listen well to the answer, for I expect many of you to disagree with me. I suppose many of you believe in your hearts that old, old fable about the adult male needing intercourse for his health. Indeed I fear that many of you are listening with cynicism in your hearts, that you are

thinking. "Oh, well, it's largely a matter of taste; some prefer one way and some another; those who don't have intercourse probably do worse." Well, gentlemen, that's true. It's perfectly true; but it ought not to be true. I wish you had heard all the discussion on this subject the other night. But since you have not, I commend for my present purpose to you a paper entitled "The Sexual Necessity," which will soon appear in the Medical News.

But I have not answered my own question yet. I have not told you what I consider the reason for promiscuous sexual intercourse. It is a habit, just the same sort of habit as smoking or drinking. A habit, tolerated if not encouraged; a habit, like smoking or drinking, though far easier to begin and far harder to break.

Just stop and ask yourselves what prompts a boy to his first illicit intercourse? Let us suppose, of course, that he has not grown up in the habit, that he has escaped seduction by nursemaids, and has not been taught to masturbate by his companions until, reaching years of some discretion, somewhere between the ages of fifteen and twenty, he "goes out with the boys." Why does he do it? Why does he take the first step in a habit which may last his whole life long? Often enough because he is just drunk enough to follow where others lead; oftener still, because he is afraid to refuse, because he thinks it is manly, because he knows the other fellows do; rarely, very rarely, I believe, does a young man open his sexual life in this way solely under the impulse of his passions. The sexual impulse, be it ever so strong, is like the impulse of the drunkard, feeble enough so long as he has never touched his liquor; but let him once get the taste in his mouth, let him run his lips warm and wet along the edge of the glass, let him smell the aroma after he has acquired the taste—ah, there is passion full-blown, if you will!

And just here is where practice grapples theory. Can't we get at that young man to prevent his initial debauch? Perhaps yes; perhaps no. I am not at all sure but that, if every boy in this world were given the best possible chance of avoiding venereal disease, more than half of them might not go ahead and get infected anyhow. But the point is, they don't get the chance; your boys don't get the chance; you yourselves didn't get the chance when you were boys. Just hark back and call to mind how sexual matters were first explained to you. For my part, I can well remember the pair of rabbits that constituted the physiologic clinic upon which my young instructors lectured.

And all those smutty tales, magnified by the groping imagination of youth! What a distorting, debasing influence they have! How they prepare the mind to take a low, vulgar, shameless view of the sexual life that is just dawning.

And to these influences we oppose what? Absolutely nothing. We read our boy the ten commandments, and he nudges his companion and chuckles as we reach the seventh. Aye, even delves into the Bible for those passages, the memory of which is handed down among boys from generation to generation. But we endeavor to forget the seriousness of these things when we grow up. We make no effort to keep our own boys out of the same old, muddy rut.

But, if you ask me to quit this theorizing, to come down to hard facts, to tell you how to approach the boy, how to get him into a clean way of thinking, I must confess I do not fully know. A lot of disconnected points I have picked up. I know that you can't teach a boy morals out of a book—he will take it into a corner and make fun of it with his friends; you can't teach out of the mouth of a woman, his innate sense of decency rebels at that; you can't lie to him, he will find you out; you can't scare him much, he won't stay scared. On the other hand, there are a lot of things you can do. You can appeal to his manliness, to his inborn sense of decency, to his sense of physical cleanliness or of religion. But the appeal must reach him with authority and with dignity. It must be directed, as much as possible, to that particular boy rather than to boys in general.

These are vague points that I allude to. In some of them I may be mistaken. Indeed I am only the veriest student of these matters. I have been thinking them over seriously only since I became interested in the Society of Moral and Social Prophylaxis. And the more I study the matter, the more it appeals to me, the more real, practical good I can see will come out of it.

I have covered only one side of the vast subject which the Society of Moral and Social Prophylaxis aims to attack. Its object is to clear up ignorance of every shade, the ignorance of the prostitute who thinks the way to rid herself of venereal disease is by intercourse with a virgin, as well as the ignorance of the young lad who knows not how to interpret the first stirrings of sexual life; the ignorance of the man who thinks he can marry within one year of his chancre, as well as the ignorance of the boy who looks forward to his first gonorrhea as the portal to true manhood.

The time is ripe for these things. Twenty years ago the discussion of matters sexual was too filthy for a Medical Society; to-day even the laity can take part in such discussions with an intelligent, clean interest; the clergy of every denomination are in sympathy with the movement. But it is for the Medical Profession to take the lead. Without you to keep the Society correct in its physiology and in its psychology, it could not discern correctly the straight path of its best endeavor. That is why Dr. Morrow and I are here to-night, to enlighten you a little, to interest you much in a work rather moral than medical, in a work, which, if energetically conducted, cannot fail to produce great good in the souls as well as the bodies of our fellow men.

Perhaps some of you are still skeptical. You

think the old Adam will be too strong for us. Indeed, I confess to such skepticism, in some degree, myself. I have no idea that the Society of Social and Moral Prophylaxis, or any other society, will turn us out a race of passionless seraphs. But I do believe, with all my soul, that we are not giving our children or our fellows a fair share of the enlightenment which we possess, or ought to possess. They have a right to freedom and all means necessary to its attainment; they have a right to virtue and health and all means necessary to their attainment. The practical difficulties in the way of imparting this necessary knowledge in such a way as to produce a good moral effect are great, but not insuperable. And to present the evidence is about all we can do. Then if the man wills with his eyes open to go the old evil way, he will, at least have had an opportunity for enlightened choice not afforded by our present system.

The results of such a propaganda will be slow to show themselves—of that we may be sure. Perhaps the Society for Social and Moral Prophylaxis itself may wither under public indifference or contempt before its mission is fulfilled. But its spirit will not die. The rumor must spread; it must interest brother and son as well as mother and wife, prelate and physician and father of family. I cannot doubt that, in the end, it will produce a marvelous change in public spirit—that, as it was the triumph of the eighteenth century to make seduction unfashionable, and of the nineteenth to make drunkenness unfashionable, so it may be the glory of the twentieth to make the law of public opinion the same for man as for woman.

REPORT ON GALL-BLADDER SURGERY, WITH ESPECIAL REFERENCE TO EARLY DIAGNOSIS AND EARLY OPERATIVE INTERFERENCE IN CHOLECYSTECTOMIES, WITH BRIEF SUMMARY OF TWENTY-EIGHT CASES, INCLUDING SIX CHOLECYSTECTOMIES.[1]

BY FRANK MARTIN, M.D.,
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(Continued from Page 1120.)

Case XII. Impacted stone in cystic duct, with hydrops of the gall-bladder. Operation: Cholecystectomy No. 2. Cured.—E. M. S., aged thirty-five years. A little over two years ago this patient first noticed present symptoms; two years last February, following confinement, patient noticed present trouble; a lump in her stomach; this so-called tumor gradually grew larger; pain was not constant and not great in severity. Patient came to the hospital on account of nervous trouble and for the tumor, being sent in with a diagnosis of a possible ovarian tumor; states that she has considerable trouble with distended stomach and indigestion. Upon examination a definite palpable mass was revealed, which extended from the region of the gall-bladder well down toward the pelvis, and could be moved about freely in the abdomen; it was not painful to the touch. Date of operation March 25, 1903. Usual incision for gall-bladder operation was made through right rectus and abdomen; found a large, oval, non-adherent tumor connected with under surface of liver by pedicle; there was an enormously distended gall-bladder, in which no inflammatory process had taken place. In the cystic duct a large smooth gall-stone was tightly impacted. The gall-bladder and stone were removed intact, by stripping a portion of the peritoneum from the gall-bladder to act as a covering for the denuded surface of the liver. The stump, which was formed by the proximal portion of the cystic duct, was turned in and sutured over, just as one would an appendix stump. Abdomen was closed without drainage. Patient was discharged April 18. Result, cured.

Case XIII. Acute cholecystitis, with empyema and perforation of gall-bladder. Operation: Cholecystectomy No. 3. Cured.—J. J. (colored), aged twenty-nine years. Present history: On March 4, 1903, patient was taken ill with sharp pain in epigastrium, paroxysmal in character, each attack lasting fifteen or twenty minutes. Following this the pain became dull in character and constant, radiating off from the gall-bladder region to his right shoulder. On entering hospital a large definite mass in right hypochondriac region over gall-bladder was noted and a diagnosis of empyema of gall-bladder was made. Leucocytosis, 16,000. Operation April 1, 1903. Opening made down over mass, an abscess opened into and perforation of gall-bladder was noted. There was one large stone in gall-bladder which was practically gangrenous. Adhesions were separated, gall-bladder freed from the liver and extirpated, a complete cholecystectomy being done. After dissecting it away from the common duct, no opening could be found between the cystic duct and the common duct; it was freely tucked with gauze for drainage, and rest of the wound closed. Patient made an uninterrupted recovery. Left hospital May 1, 1903, cured.

Case XIV. Cholecystitis. Operation: Cholecystotomy. Died one week following operation, from hemorrhage.—G. B. M., aged thirty-four years. Patient had been ill for a long time with obscure symptoms, following typhoid fever. At time of my visit she had complained of great pain in region of her gall-bladder, with considerable vomiting, and her doctor and consultant, who were leading medical men in the city, thought it had to do with an inflammation of the gall-bladder. Operation July 28, 1903. She was markedly emaciated, had lost resisting power by continual vomiting and her condition was very unpromising. Her gall-bladder was uncovered and found somewhat distended. No evidence of any marked inflammation about it and not much thickened; upon opening it, it was found to be filled with a dark thick fluid bile, but no stones were found in either the gall-bladder or ducts, nor any obstruction in the ducts, and very slight

evidence of inflammatory trouble in the gall-bladder. Drainage was instituted and she did well for some days, but as the packing was being removed by my assistant, at the end of a week, bleeding was started up, which became persistent, in the gall-bladder and the wound around, and the hemorrhage continued to ooze from this surface and grew more and more profuse. Nothing seemed to stop it, and a fatal issue was the outcome on August 5, from hemorrhage.

Case XV. Carcinoma of common duct and liver. Exploratory operation: Left hospital in same condition.—V. J. M., aged sixty-two years. Brought to me for gall-stone disease. Had been ill with progressive emaciation and pain in the gall-bladder region for some months; evidence pointed to carcinoma, not only of the gall-bladder, but of the liver, and on November 18, 1904, an exploratory operation was done under ether. Carcinoma of the common duct and liver was found and no operative proceedure undertaken; abdomen closed; healed under one dressing; patient left hospital in same condition.

Case XVI. Acute infection of gall-bladder. Operation: Cholecystotomy. Cured.—L. H., aged thirty-seven years. Admitted to St. Joseph's Hospital on June 26, 1904, with great pain in abdomen over his right hypochondriac in the neighborhood of gall-bladder; palpation over gall-bladder showed marked tenderness; this had been persistent for some days and associated with temperature, pulse, and leucocytosis. Operation June 26, 1904, cholecystotomy and an appendectomy done for chronic appendicitis. The gall-bladder was found acutely distended; was opened, and a large quantity of dark ropy bile evacuated; no stone found in gall-bladder or common duct. Result, cured.

Case XVII. Empyema of gall-bladder; acute perforation; localized peritonitis. Operation: Cholecystectomy No. 4. Cured.—M. F. (colored), aged twenty-five years. Patient taken acutely ill on July 3, 1904, with severe pain in region of gall-bladder, associated with persistent vomiting; sent into hospital with a diagnosis of appendicitis; pulse 120, temperature 104° F. Leucocytosis, 18,000. History of having had attacks of similar character, of less severity, previously. Operation July 9; ether; right rectus incision. When peritoneum was opened adhesions were found behind the peritoneum and gastrocolic omentum; continuing the separation of adhesions at this region I evacuated a quantity of foul-smelling pus; perforations were found in the fundus of the gall-bladder, as well as perforations off through the gall-bladder into the liver; the gall-bladder was so necrotic and gangrenous that I determined to do a cholecystectomy. In stripping the gall-bladder away from the liver, a large area of liver, immediately adjacent, proved gangrenous and came away with the gall-bladder. The gall-bladder was tied off at the cystic duct where it joins the hepatic duct, and the entire gall-bladder and cystic duct were taken away, with a large section of the liver; bleeding from the liver surface was controlled by gauze packing; wound closed up around the gauze drainage; patient made an uninterrupted recovery and left hospital entirely relieved.

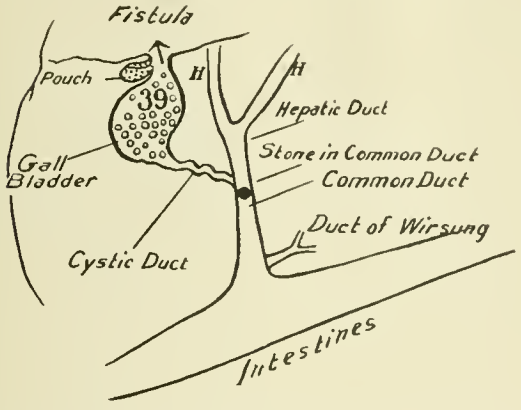
Case XVIII. Chronic Cholecystitis: Cholelithiasis; Gall-Bladder immensely thickened and infiltrated; some sections of it being about an inch and a half thick. Cholecystectomy No. 5. Cured.—R. T. A., aged forty-nine years. Had been sick five months with pain in region of gall-bladder and stomach symptoms for some weeks; was under care of Dr. Hemmeter for stomach disorder during that time; he suggested the diagnosis of gall-stone disease. Operation September 29, 1904, at University of Maryland Hospital. Ether; right rectus incision, costal border well below umbilicus; gall-bladder covered by dense adhesions; small intestines and stomach all found adherent to gall-bladder; on separating adhesions gall-bladder was found much thickened, stiffened hard, and stone in common duct; removed entire gall-bladder; tied off the cystic duct with catgut; whipped up the bleeding liver surface with catgut; left gauze tucking in where duct was ligated, and closed abdomen up. When gall-bladder was opened one large stone was found embedded in the wall of the bladder, which was was over a half inch thick. Microscopic sections showed it to be a chronic cholecystitis. Result, cured. There was no leucocytosis; no increased temperature or pulse, and a diminution of red blood cells and hemoglobin.

Case XIX. Cholecystitis and Liver Abscess. Operation: Opened down over gall-bladder and drained large liver abscess. Cured.—J. D., aged sixty-five years. Entered University of Maryland Hospital September 16, 1904, with supposed gall-bladder disease. Past history: Thirteen years ago had severe attacks of gall-stone colic, extending over a considerable period of time, during this time there were several dozens of stones passed through the bowel, from the size of a large pea, and larger. Since that time has had pain occasionally in liver region, but no more discharge of stones. About September 1, was taken ill with pain over region of gall-bladder, sharp and lancinating and gradually became, over to the left, a dull, aching sore place, immediately over gall-bladder, which was tender to the touch; considerable vomiting and some little jaundice; two distinct chills, first two weeks sweating and fever going to 102° F. Upon entrance to hospital her urine was found very scant, considerable albumin and casts and her condition was so unpromising that a surgical operation was deemed inadvisable at time of entrance; diagnosis given was suppurative condition, having to do with gall-bladder, probably stones. A marked leucocytosis was noted, 12,400. I was away at the time she was brought to me, and when I returned I found that by careful treatment her condition had improved; her urine had increased in amount and her general condition was somewhat better,

but she had marked tenderness over the gall-bladder, and on October 1, under chloroform, the operation was performed; right rectus incision was used; gall-bladder uncovered, no stones were found, very slight amount of inflammation noted in the gall-bladder, but some adhesions were noted above the fundus of the gall-bladder off toward the liver. On freeing these adhesions pus was evacuated which came from the abscess in the tissues of the liver, midway between the gall-bladder and the diaphram and extending up to the diaphram; no stone was found; abscess opened freely and drained. Wound was closed up to the point of drainage and all went well. She left hospital in four weeks' time entirely healed.

Case XX. Choledo-Cholelithiasis. Operation: Cholecystectomy and Choledochotomy. Cured.—P. McD., aged sixty-seven years. Patient has had a biliary fistula for fourteen months, from which he had continuous discharge of bile, and at various intervals a number of gall-stones have worked their way out. The fistula is directly

FISTULA OPENING ON ABDOMINAL WALL.



over the region of the gall-bladder, and patient thinks that it came following the use of a brace and bit, that the brace pressed upon him at this point and gave rise to this trouble. He gives a history, however, of having had jaundice some years prior to this supposed injury. I do not regard the patient's theory as having anything to do with this trouble. I am of the opinion that he has had gall-stones for some time, and engrafted upon this he has had an infection of the gall-bladder, which went on to suppuration, in other words an empyema of the gall-bladder formed and a perforation occurred through the abdominal wall, leaving him this fistula. For many months it discharged pus alone, then after the drainage had gone on for some time, the inflammation in a measure subsided, and the discharge coming from the fistula has since then continued to be clear bile. On October 21, under ether, I opened his abdominal wall to the left of the fistula, through the right rectus muscle, found many dense adhesions tied to the mesentery of the colon and the omentum over the gall-bladder, shutting it in such a way that it was difficult to find. These were separated by ligature, the gall-bladder uncovered, and my hand passed down to the foramen of Winslow, revealing a large stone in the common duct; the gall-bladder was full of stones, 39 in number, and closely adherent to the abdominal wall. A little pouch had formed in the abdominal wall, connecting with the fistula, in which a number of small stones were found. I separated the gall-bladder from the liver, traced it down to its entrance in the common duct, put a large hysterectomy clamp around the fundus of the bladder, where opening went into abdominal wall, cut it loose from the abdominal wall, then took it away close down to the common duct, thereby performing a complete cholecystectomy. A small incision was made over the common duct, and the stone evacuated. The opening into the common duct was sutured with catgut sutures; the raw surfaces on the liver from which the bladder was dissected, sutured up with catgut sutures, gauze drainage let down into the opening into the common duct; the fistulous tract in the abdominal wall was dissected out, and the abdomen closed up around a gauze drainage. Patient had a very tedious recovery; been practically ill ever since the operation, and was delirious for some weeks following operation; tissues around his wound were infected and it was hard to keep the wound open so that the bile would drain. Slowly he got better; wound closed, save for a small place near the costal border; he has been steadily gaining in strength and getting about the ward for some weeks past; a short while ago it was noted by the assistant that he had a necrosis of the costal border; under cocaine, February 10, I opened down on the costal border of his thorax on that side and found necrosis extended some distance, involving the cartilage corresponding to third or fourth rib. This I removed and curetted out the various sinuses which were connected with one another; tucked it freely with gauze and left the wound widely open. He is doing very well, and March 5, was allowed to go to his home in West Virginia. Patient's condition when he left hospital was most promising, having practically entirely recovered and regained his strength.

Case XXI. Carcinoma of Gall-Bladder and Liver. Operation: Exploratory Laparotomy. There was so much involvement of the liver that no operation was done. Died.—E. L., aged sixty-five years. Patient had been sick for several months, attended with emaciation, jaundice and distended gall-bladder; exploratory incision was made, under ether, but carcinoma was found obstructing common duct, and there was marked involvement of liver, with carcinomatous nodules all through it; abdomen was closed without attempting any operative interference. Patient was very weak when operated upon and died from exhaustion about a week after operation.

Case XXII. Carcinoma Common Duct and Liver. Operation: Exploratory Laparotomy. Un-

improved.—A. R., aged sixty-eight years. She had been ill with jaundice, intermittent attacks of pain, with distinct chills, with high temperature following; had been jaundiced for last two months, progressively emaciated and had become very weak from vomiting and want of nourishment, which they had been unable to give her. I was called to see her because she was thought to have gall-stones. She had a progressive jaundice, which had been deepening the last four weeks, and, as said before, she had been steadily losing in weight and in strength. I gave it as my opinion that it was more than likely malignant; advised an exploratory operation. She was sent to University of Maryland Hospital, and under ether I opened abdomen and found above-mentioned trouble; distended gall-bladder and carcinoma of common duct and liver; liver considerably enlarged; no stones found in gall-bladder or common duct. Result, unimproved.

Case XXIII. Carcinoma of Gall-Bladder, Common Duct and Liver. Operation: Exploratory Laparotomy. Unimproved.—J. McD., aged fifty-four years. Called to see patient September 2, 1904; found her with a palpable mass, which was tender to the touch, in the region of her gall-bladder, lower border of the liver could be made out; gall-bladder was distinctly distended; the past history of interest in this case is that thirteen years prior to my visit she was operated on by Dr. L. McLane Tiffany for carcinoma of the breast. Between that time and several months before my visit to her she remained well, no evidence of any metastasis, and as she had gone so long following the operation for breast carcinoma, it seemed rather improbable that she should have a metastasis this late, so she was given the benefit of iodide of potash in large doses, going up to 125 grains three times a day, without any improvement. The early part of November she became markedly jaundiced and showed evidence of increase in palpable mass in her gall-bladder region. On November 9, at University of Maryland Hospital, under ether, exploratory was done, more with a view to clearing up the diagnosis than anything else, as I felt confident then she had carcinoma of the liver and gall-bladder. Exploratory laparotomy revealed marked and very extensive carcinoma of the liver as well as a markedly distended gall-bladder which had nodules of carcinoma in it and an obstructed common duct, due to carcinoma. The abdomen was closed without any operative interference; wound healed under one dressing and she left hospital unimproved.

Case XXIV. Liver Abscess and Infiltrated Gall-Bladder. Operation: Free drainage of liver abscess by an opening in the front; and in the back by resecting ribs and draining through and through. Cured.—M. P. H., aged thirty-seven years. Patient entered St. Joseph's Hospital, suffering with a large, palpable mass over the gall-bladder region and liver. History was that he received an injury over costal border on right side, which he had had treated at Hopkins Hospital for fractured ribs; did not improve, but continued to have trouble from date of his injury until time I saw him. Shortly after his so-called injury he gives a history of having had a mild attack of dysentery. Under ether, an opening was made down in front, just below costal area, just over the liver; this was uncovered, needle passed down into liver and pus evacuated, seeming to the feel as though it were in a large cavity; with the knife I made a good incision through the liver substance down into the abscess cavity, found a huge abscess running down into the back; tenth and eleventh ribs were then resected back toward the spinal column and the liver incised through until the abscess cavity was reached; this wound was enlarged and fully three quarts of pus were evacuated; a large drainage tube was then run through from this opening through the abscess and out from the opening in front so that there was through and through drainage; another large tube was run down through the front incision into the abscess cavity into the liver; this drainage was kept up for a considerable time; the man made an uninterrupted recovery and left hospital about two months after operation entirely well. No ameba were found in the pus.

Case XXV. Large Abscess of Liver, Following Attack of General Peritonitis, Due to a Perforated, Gangrenous Appendix, Which Opened Through the Diaphragm into the Lung, Free Communication Taking Place Between the Abdominal Incision Made for the Relief of the Gangrenous Appendix and Peritonitis and the Mouth, so That When Abdomen Was Irrigated the Water Came Out Through the Mouth.—F. R., aged eight years. Sent to me for appendicitis; was desperately ill with general peritonitis when he entered hospital and a rapid opening was made into his abdomen. He was found to have a gangrenous appendix, with a general peritonitis, no walling off whatever; pus squirted from his abdomen from all quadrants when the abdomen was opened; he was drained, and several weeks afterward found to have enlargement of his liver and supposed gangrenous pneumonia. He grew very ill, ran a very septic chart, and became emaciated down to a skeleton; about three weeks after operation, while the abdominal wound was being irrigated a quantity of pus came up through his thorax through his mouth, and an immense abscess was evacuated in this way; after this fluid went through from the abdomen through the liver abscess and the lung abscess and out through the mouth. Explanation of it is that a septic phlebitis ran up from the pus of the appendix to the portal circulation, producing a liver abscess; this perforated through the diaphragm and a septic pneumonia occurred which broke down and the liver abscess was drained through the lung; after this free drainage occurred, the patient gained steadily and made a very excellent recovery.

Case XXVI. Large Abscess of the Liver (amebic). Operation: Opened Freely and Drained. Cured.—J. H., aged thirty years. Entered University of Maryland Hospital with a large mass over his liver and gall-bladder region; opening was made down over liver and revealed a large liver abscess; drainage was also made from the side by resecting a rib and drainage instituted there. Examination of pus revealed the ameba. Made an uninterrupted recovery.

Case XXVII. Cholecystitis, Perihepatitis and Definite Nodules Through Liver, Doubtless Syphlitic in Origin. Operation: Exploratory Laparotomy.—H. W., aged thirty-four years. Patient has been sick since August, 1904, with pain in region of gall-bladder, and there was a definite mass (palpable) to be felt in this region. I operated March 2, 1905; under ether, opening made through right rectus, many adhesions separated; an enlarged liver found, no stones in gall-bladder; nodules in the liver were noted; no reason was seen for opening the gall-bladder, so abdomen was closed. Nodules in the liver were thought to be gumma, more than likely. Patient healed under one dressing, and is improving at St. Joseph's Hospital now, under use of iodide of potash.

Case XXVIII. Acute Cholecystitis; 958 Gall-Stones Removed from the Gall-Bladder. Operation: Cholecystotomy. Cured.—I. W., aged sixty years. Sent into hospital for appendicitis; I found her with a palpable mass in region of her gall-bladder and suffering with attacks of violent gall-bladder colic; temperature and leucocytosis. Under ether, abdomen was opened, gall-bladder was found adherent to surrounding parts, omentum, stomach and colon were tied up to the fundus of the gall-bladder by adhesions; these were separated off by ligatures and gall-bladder opened; 958 stones removed. A drainage tube was inserted into gall-bladder and gall-bladder tucked off with gauze, not sutured to the parietal peritoneum (as I never make use of the method of suturing the gall-bladder, simply tuck it around with gauze and allow adhesions to shut it off). Abdomen was then closed up around the drainage. Patient made an uninterrupted recovery.

MEDICAL PROGRESS.

SURGERY.

Technic of Transplanting Thiersch Skin Grafts.—Thiersch modified Reverdin's technic in utilizing larger strips of skin. L. ISNARDI (*Zentralblatt für Chirurgie*, April 8, 1905) states that for the last eight years he has placed the Thierch grafts upon the absolutely intact granulation tissue without even so much as rubbing it with gauze. He reports 140 cases in which this method has been practised and shows ground for his belief that this represents the most important advance in the technic of skin grafting since the introduction of the Reverdin method. In order to accomplish the best results the field of operation should be rendered antiseptic. The granulations should be small, red, sound and healthy. This condition is obtainable only through continual cleaning of the wound and by constant changing of the dressings. These should alternately consist of wet and dry dressings which should be changed with the utmost care so as to avoid any causation of hemorrhage. If any infection appears, it is almost certain to destroy the vitality of the graft. For holding the grafts immobilized upon the surface, the author spreads a wide-meshed gauze dressing over them. This is then fixed to the margins of the wound with collodium. In the event of infection following, the gauze is removed and the sutures are made fast with a fine sterilized metal thread, which is wound spirally around the extremity. A damp band is then laid over the grafts, 3½ per cent. boric acid solution being a convenient antiseptic to use. This should be changed every twenty-four hours, and if the infection is at all marked, twice as often. With gauze sponges the exudate can be very carefully wiped away without danger of moving the grafts which are fixed as described. The grafts should be sacrificed or punctured if any collections of blood or pus are found beneath them. On the eighth day everything is taken off and the wound area is spread with euphorin and wrapped with dry gauze and cotton in order to keep it warm. Frequently narrow margins often form between the lips of the grafts, no matter how closely they may have been approximated. These, however, soon bridge across and the area should be entirely covered in two weeks.

Esophageal Diverticulum Successfully Excised.—It is probable that esophageal diverticulæ are not so rare as is generally supposed. Undoubtedly a great many patients with moderate or even severe lesions go through life without ever realizing the existence of the trouble. A. B. BARROW and JOSEPH CUNNING (*Lancet*, April 8, 1905) report the following most interesting case: The patient was a woman, fifty-five years of age, and was admitted to the Royal Free Hospital with a diagnosis of epithelioma of the esophagus. Her disability consisted in difficulty in swallowing, which had gradually grown worse during the past eight years. She had been treated for bronchitis on several occasions. This supposed disorder consisted in her coughing up a large quantity of frothy sputum. But on careful questioning it was found that she never actually coughed in the ordinary sense of the word. She regurgitated, but did not vomit food which was quite unchanged as long as three days after she had taken it. As instances, she cited regurgitating a pickled onion, portions of rabbit, etc. The patient seemed so thin and cachectic that she certainly appeared to be suffering from malignant disease. Physical examination showed an absence of swelling and also of enlarged glands. But on bilateral pressure over the esophagus just below the level of the crycoid cartilage a certain amount of gas might be squeezed into the mouth. A medium-sized bougie stopped eight inches from the teeth and could be felt to the left of the tracha. A small bougie could be passed into the stomach. If two bougies were passed together, the first went into the pouch and the second into the stomach. The regurgitated food, on examination, was found to be free from hydrochloric acid. An unsuccessful effort was made to obtain a Roentgen radiogram of the pouch. Metal bougies were passed into it, but the mere fact of seeing them at certain points in the neck did not afford valuable evidence as to what prevented their passing downward. An attempt to fill the pouch with bismuth was also unsuccessful. On operation a large esophageal bougie was passed eight inches from the teeth and could be felt in the neck below. An incision 4½ inches long was then made on the anterior border

of the sternomastoid upward from the left sternoclavicular articulation. The sternomastoid was pulled outward. The sternohyoid and sternothyroid inward, exposing the carotid sheath. The vessels were then retracted outward and the trachea was seen to the inner side. The esophagus was then distinguished and lying to the left of and behind it was a white fibrous coated pouch 1½ inches long with a bougie in it. On tracing the pouch upward, its neck was discovered to be in the largest part of the posterior wall of the pharynx. The fibrous coat of the neck was divided and turned back as a cuff. The mucous membrane was then ligatured, cut and the fibrous coat stitched over. The muscular coat was then brought together over the side of the neck of the pouch. Drainage was instituted and on the third day, as no discharge had come, it was removed. For seven days the patient was fed on nutrient enemata and was then able to swallow milk. In two weeks she was able to swallow any food. Eight months after operation she had gained 42 pounds.

Treatment of Inflammation by Means of Suction. R. KLAPP (*Münch. med Woch.*, April 18, 1905) draws attention to the fact that the customary surgical treatment of many inflammations is still very unsatisfactory. Thus, in mastitis, multiple incisions are necessary, which often destroy the shape of the breast and render it unfit for further lactation. If superficial abscesses are incised and the entire breast brought into a condition of passive hyperemia, a cure will often be accomplished rapidly. The author employs a low bottle without bottom, which is applied closely to the breast and then exhausted through its narrow end by means of a syringe. The degree of hyperemia necessary must be acquired by experience, but usually the tissues should present a slight bluish tinge. Suppuration is most amenable to this treatment, but even diffuse infiltration will yield, though more slowly. In 15 cases the average duration of treatment was three weeks. In furuncles, abscesses, infected wounds and other suppurations about the trunk or extremities, the same treatment may be employed. The necessary degree of suction is here obtained by the ordinary dry cups with open end, into which a rubber bulb is fitted. Beginning furuncles will be aborted after two applications of forty-five minutes each; severer cases will require five to six days only. Even large carbuncles disappear without incisions. The treatment is of the greatest value in the much-feared furuncles of the lip, since these are often followed by general sepsis if incised.

Soluble Button for Intestinal Anastomosis.—There is no question that the use of insoluble materials in the abdominal cavity has been attended, and will always be attended with great risk. PETER PATERSON (*Lancet*, April, 1, 1905) suggests a new method for creating soluble buttons. He has come to the conclusion that gelatin, which has been treated with chromalum, meet all necessary requirements. Furthermore, it has the additional recommendation that it can be made more or less resisting to digestive processes, so as to suit both the taste of the surgeon and the position of the digestive canal in which it is placed. When chromic acid is mixed with gelatin and exposed to light, or when its salts are so used, the gelatin after a time becomes entirely insoluble. Gelatin thus prepared, however, becomes brittle, the degree of brittleness depending on the strength of the solution. Alum also hardens gelatin, but not sufficiently to prevent its rapid solution in the intestinal secretions. Chromalum, however, combines the properties of both, giving insolubility and hardness. When a strong solution of gelatin is gelatinized and a half inch cube is soaked for from half hour to an hour in a concentrated solution of chromalum, then boiled in water, it will be found that the surface remains solid, while the center becomes liquid. If this tube be allowed to remain in the alum for twelve to fifteen hours, it will remain solid throughout. The time necessary for solution in the intestinal juices depends upon the strength of the chrome solution and on the strength of the enzyme employed. The author has found that the most suitable strength for these buttons is 10 grains of chromic alum dissolved in one ounce of cold water. The buttons, which are not unlike Murphy's, are made by pouring strong gelatin into molds. These are lined with a single layer of strong muslin. This becomes saturated with the button and incorporated with the outer part of the button. When the buttons have set, they are put away in an ounce of the solution and are left there for a period which depends upon the size of the button and also upon the degree of insolubility desired. They are to be kept, after ten or twelve hours of soaking, in 50 per cent. alcohol until used. There is sufficient moisture in this fluid to prevent drying and shrinkage, while the alcohol increases their toughness. It is very important that the projection of the male portion of the button should fit the opposite half so that some pressure will be required to send it home, and to increase this adhesion, it is better to have the tube made slightly oval in section. A button three-quarters of an inch in diameter prepared as described, resists solution from five to seven days. The method of using the button is practically analogous to that employed in inserting Murphy's button. A purse-string suture should be passed around the divided intestine and the button, with its halves open but not detached, is placed in position and the sutures are pulled tight and tied. The two halves are then pressed together.

Prostatism Without Prostatic Enlargement.—By prostatism is understood that horrible chain of symptoms which follow upon chronic hypertrophy of the prostate. CHAS. H. CHETWOOD (*Annals of Surgery*, April, 1905) points out that this same train of symptoms has, without doubt, often been encountered quite indepentent of prastatic enlargement. The symptoms referred to consist in general of urgency and frequency of urination, of pain and of partial or complete retention of the urine. Contracture of the neck of the bladder is in the author's opinion a lesion which in the past has not frequently been recognized. Pathologically it consists in a fibroid stenosis of the vesical orifice. It is not a hyperplasia of the muscular elements of the sphincter, nor is it a simple spasm or a mucous fold, but a pure fibrous infiltration of inflammatory origin. It is common in the young as well as in the aged and is found alone during the mature stage of prostatic hypertrophy, or it may coexist with this condition. Thompson recognized the fact of contractures of the neck of the bladder without cioncident enlargement of the prostate, for in an article written in 1883, he refers to an obstruction of the bladder outlet which occurs under the conditions cited. The recognition of the condition during life is not difficult. When it exists, in the absence of an hypertrophied prostate, the examining finger will detect the normal gland, and measurement of the urethral length will show it to be within the normal limits. The catheter may yield little or no residual urine until the bladder's compensatory power has been overcome. Generally speaking, it may be stated that the contracture of the neck of the bladder is the causative factor of complete or incomplete detention of urine in the patient presenting a normal urethral length and the prostate normal to

rectal touch in the absence of tabes or other central lesions. A full-sized steel sound may enter the vesical orifice without marked difficulty, as this is the most distensible part of the canal. The suprapubic incision may in certain chosen cases be necessary to clear up the diagnosis. With one finger in the bladder and another in the rectum, prostatic enlargement may be definitely shown to be absent, while about the prostatic urethra, the examining finger will meet an orifice so tight as to barely admit its tip. Simple incision of the obstructing ring is likely to be attended with very severe hemorrhage. The author has accordingly utilized in 30 cases the galvanocautery, which is safe, bloodless and effective.

Pressure Stasis.—The literature on this interesting subject is becoming rapidly augmented. R. LANE JOYNT (*Lancet*, April, 1905) reports the case of a man, twenty-two years of age, who was caught under the counterweight of an elevator and severely crushed. The weight weighed over two tons. It settled upon his back, its lower edge five inches thick, catching him as he stood upright across both scapulæ. He was doubled down until his bent knees were forced against his chest, his body being prevented from going forward by a wire caging. He never lost consciousness, but became totally blind and remained so until a few minutes after he was released. On regaining vision, the sight in his right eye was dim and he saw double. Twenty minutes later, on being admitted to the hospital, he was found to be in a state of extreme collapse. His abdomen was rigid and hard and sides flexed. X-ray examinations showed that the internal malleoli of each tibia had been broken off. There were other minor indications of injury. The most marked condition, however, was that seen in his face, which was livid, the color varying from isolated red points about the forehead and neck to a dusty red in his ears and cheeks. There was a sharp line of demarcation between the normal and colored skin across the neck at the level of the thyroid cartilage, coursing upward to the roots of the hair on the nape of the neck. There was slight hemorrhage from the right ear. The eyes became so suffused that at the end of two days no white was any longer visible in them. The aureola around the eyes contrasted strangely with the color of his face, which began to fade rapidly on the second day. His dimness of vision in the right eye ceased in twenty-four hours and the diplopia in three days. From the rigidity of the abdomen and from the collapse, it was thought possible that he had suffered some rupture of the abdominal organs, but this was found not to be the case. One week after the infliction of the injury, the color had subsided entirely from the face and in part from the eyes. The subsequent history of the case was uneventful and the length of time that the patient was detained in the hospital was determined more by the accompanying bone injuries than by the pressure stasis symptoms.

Suprapubic Prostatectomy. There are many excellent surgeons who, like English practitioners, hold to the belief that the suprapubic method of operating is the better. HOWARD LILIENTHAL (*Annals of Surgery*, April 10, 1905) states that from an experience in 31 cases at Mt. Sinai, he believes the suprapubic operation to be the safest of all procedures for the relief of prostatic obstruction.—Operative recovery resulted in every case of the 31 treated and perfect functional recovery in all except two. In one there is sphincter weakness and the other has a residual of from ten to 100 c.cm. The steps of the procedure as employed at Mt. Sinai are as follows: There should be two days' preparation. If cystitis be present, the bladder should be emptied by catheter every three hours day and night. Irrigation, except in the presence of large quantities of mucus is not necessary. Salol in five-grain doses is given three times a day. Urotropin may be given when the wound is healed. The heart is usually a little stimulated and the kidneys flushed with plenty of water. A catheter is next passed into the bladder and rubber atomizer bulb is attached to the catheter. The anesthetic is then administered. In many cases this need be nothing more than gas, although occasionally ether may be needed in addition. A sagittal incision 2½ inches long is made. The bladder is then inflated until it feels tense on digital pressure. The peritoneum is then pushed up and two silk traction sutures are deeply placed in the vesical wall. Between these sutures, the bladder is punctured with a narrow-bladed knife. The bladder is then explored, stones are removed and the prostate palpated. An assistant then places his finger in the rectum, pushing up the prostate so it may be caught firmly with volsella. An incision is then made with scissors into the prostate and posterior part of the organ is freed with the aid of two fingers. For the past two years the author has had each specimen examined pathologically for urethral mucous membrane, but none has ever been found. The parts should then be flushed out and the prostatic portion packed with gauze. Perineal drainage is unnecessary. If the patient is feeble and there is danger of pulmonary hypostases, it is best to get him out of bed on the second or third day. Catheterization has rarely been necessary, but the bladder should be frequently washed out with the siphon tube, which is usually inserted after the gauze wick has been removed through the abdominal wound. This tube is removed before two weeks have elapsed and the patient soon begins to urinate normally. The advantages of this operation are that it is radical, that no important vessels or nerves are touched and that the urethra is not injured. It is almost impossible to injure the rectum. All the parts are freely visible and one can gain in this way, as in no other, a full understanding of the underlying causes. It precludes the necessity for free operative cystoscopy. It may be performed under nitrous oxide anesthesia.

NEUROLOGY AND PSYCHIATRY.

Relation between Insanity and Epilepsy and Duration of Life.—The following are the conclusions drawn by R. JONES (*Am. Jour. Insan.*, Jan., 1905): Insanity *per se* is inimical to life. It is a deterioration mental and physical. It causes more deaths in every quinquennium among the certified insane in asylums than in corresponding periods among the general population. Cases least affected are those holding fixed ideas, sometimes called paranoiacs, or persons suffering from delusional insanity, as are also those in whom an acute attack of insanity has left moderate but chronic weakmindedness. Congenital weakmindedness diminishes the expectation of life. The most powerful and the most frequent antecedents of insanity and of epilepsy is either ancestral insanity or epilepsy. All medical forms of inquiry used in insurance offices should ask whether there is a history of ancestral insanity (parents and grandparents) and collaterals (uncles and aunts). That a suicidal tendency is eminently heritable—often appearing at the same age in the offspring as in the ancestor. That suicides in asylums occur less frequently by one-half than in the general population during the period of greatest liability. That phthisis and insanity are strong converging factors toward insanity. That epilepsy shortens life more so, by an average of ten years, than insanity. That antecedent syphilis in many assurable cases cannot be definitely ascertained either

by admission of the fact or by its sequelæ, and that general paralysis occurs not more often than in about one per cent. of all cases which have contracted syphilis.

A Case of Chorea Fatal, Apparently from Excessive Muscular Action.—J. P. Crozer Griffith (*Am. Med.*, April 29, 1905) refers to the fact that death from chorea is unusual, the Collective Investigation Committee of the British Medical Association finding only 9 deaths in 430 reported cases, and Sinker finding but 64 occurring in Philadelphia during seventy-four years. In the great majority of cases the fatal issue depends upon some complication, especially endocarditis, and deaths depending directly upon exhaustion from enormous muscular action must be considered a rarity. He reports an instance of this occurring in a boy of 11 under his care at the Children's Hospital of Philadelphia. The child had had a previous attack of chorea two years before. The cause of development of the present attack was not known. A month before, he commenced to show restlessness, which advanced to choreic movements and grimaces. For a week the movements had been excessive. On admission to the hospital nothing could be found abnormal in the organs, except the presence of a systolic murmur in the mitral area. The boy could not speak, although he seemed to understand perfectly. The movements were so excessive that the child was thrown violently about the bed, and was bruised all over. Sleep was almost absent. The condition was relieved to a certain extent by hyoscin hydrobromate hypodermically given, the administration of morphine, potassium bromid and chloral hydrate having been entirely ineffective. The excessive movements continued and exhaustion finally ensued, and death. The autopsy showed the presence of an endocarditis with micro-organisms in the heart muscle and in the mitral leaflets. While it cannot be affirmed positively that death did not follow from endocarditis, yet the case bore all the evidence of death from exhaustion, the result of the enormous muscular activity.

Autopsy Findings in Epilepsy.—B. Onuf (*Journal A. M. A.*, April 29) reports the results of careful autopsies on sixteen epileptics at the New York State Institution for Epileptics. In twelve cases there were valvular changes of the heart, most frequently of the mitral valve (80 per cent.), less so of the aortic and still less frequently of the tricuspid valves. These he considers generally as secondary results of the special strain due to the major epileptic attacks. Capillary changes, tortuosity and aneurismal dilatations, were observed in several cases, and were attributed to the same causes. In eight of the cases where the lungs were examined, there was acute pneumonia as a contributory cause of death. The cerebral changes were very striking. In ten cases there was a marked thickening of the pia chiefly over the frontoparietal lobe. In other cases there were vascular lesions, circumscribed atrophy of one frontal lobe, subdural hemorrhage (one case), internal hydrocephalus (one case), cerebellar cyst (one case) and shrinkage of convolutions of vermis and adjoining cortex (three cases). The most striking changes, however, were noted in the thalamic region. These were in the nature of atrophy, sometimes the pulvinar, sometimes the other portions being most markedly affected. There was also an apparent discrepancy in the proportions of the geniculate bodies. Onuf discusses the possible relations of these thalamic changes to the epilepsy, but does not venture to express an opinion as to whether they are directly connected with the seizures or are only part of a general pathologic condition of the brain. He suggests that there was probably an optic atrophy in some of these cases, and hence the importance of fundal examination in epileptics. The importance of good clinical histories in these cases is also emphasized.

New Phenomenon Associated with Peroneal Palsies.—A motor symptom which has apparantly not been previously described, has been observed in a series of cases of this character by H. Hirschfeld (*Berl. klin. Woch.*, March 13, 1905). It is not present in complete paralyses, but only in palsies. He describes the phenomenon as follows: If a patient who is afflicted with a palsy of the muscles supplied by the peroneal nerves, is directed to flex his foot dorsally, it will be found that the degree of this movement is directly dependent on the amount of paralysis present. Hirschfeld claims that the resulting angle is less when the leg is extended than when it is flexed at the knee. The difference may be as much as 30 to 40 per cent., and in severe cases of palsy may be so great that dorsal flexion may not even be possible when the leg is extended, although it may readily be executed when the knee is bent. The writer believes that the phenomenon is the result of the anatomical conditions under which the muscles functionate. The peroneal group of muscles are concerned with dorsal flexion of the foot, and in doing so, must overcome the action of the calf muscles which are attached by the tendo Achilles. This resistance, owing to the double attachment of the gastrocnemius and plantaris to the condyles of the femur, is much greater when the leg is extended than when it is flexed. This phenomenon is considered by the author to be of value in the treatment of the condition, for a patient may be more encouraged to make attempts at raising the foot when he finds he can do it better with the leg flexed.

PRESCRIPTION HINTS.

Treatment of Alopecia.—Alopecia in women is frequently caused by pityriasis, but still more frequently no local cause can be assigned. In any case the treatment is about the same, although the preparations must be varied in order to obtain rapid results; it is also indispensable to apply the solutions with a hard brush.

The following formulæ will be found useful:

℞ Hoffman's anodyne ..... ℥vi
Spirits of camphor ..... ℥i
Spirits of lavender ..... ℥i
Nitrate of potash ..... grs. x
Formol (of commerce) ..... mim. xv
Water ..... ℥ii

℞ Hydrochlorole of pilocarpine ..... grs. x
Rose-water ..... ℥ii
Proof spirit ..... ℥vi
Ether ..... ℥i
Spirits of lavender ..... ℥i

℞ Acetone ..... ℥iii
Proof spirit ..... ℥iii
Liq. ammonia ..... ℥i
Water ..... ℥ii
Caffeine ..... grs. x
Ess. of violette ..... ℥i
Tincture of capsicum ..... ℥iv

This treatment, well applied, rapidly arrests the fall of the hair. At the end of about three months new hair sprouts, especially if the parts have been vigorously brushed. At the end of a year the new hair attains about five inches in length.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, JUNE 24, 1905.

THE SOCIETY OF MORAL PROPHYLAXIS.

THE first two meetings of the Society of Moral Prophylaxis brought out very clearly the object of the Society, as can be seen from the proceedings published on another page in this week's MEDICAL NEWS and in the papers read, which will be found among our original articles in this and a subsequent issue. There is no doubt that a campaign of education is needed in this important matter of the extension of knowledge with regard to the significance of venereal disease and its awful consequences to society. One reason for the present lack of appreciation among those outside the medical profession in this country of the possible results of these diseases is due to the fact that popular ideas represent old-time medical opinions which have not yet been outgrown. This is true in practically every department of what might be called popular medicine, that is, of popular beliefs on medical subjects. The opinions accepted by the medical profession half a century ago are those which are now dominating the popular mind. The physician of two generations ago laughed at gonorrhea and thought it not much worse than a cold in the head, while as to syphilis, no real idea of its significance was at all prevalent. Its relation for instance, to paresis, locomoter ataxia and the other severe and incurable nervous and mental diseases with which it is now known to be so closely associated, was scarcely suspected.

Since it is obsolete medical opinions that are deceiving the public, it is incumbent upon the medical profession to use every effort to correct false impressions. As pointed out by Dr. Prince A. Morrow, there is no doubt that even the majority of physicians themselves do not appreciate all of the serious evils of venereal diseases, and consequently they are not in a position to teach this important subject to others in its proper light. At the present time, about one-eighth of all the illness which afflicts mankind is due directly or indirectly to venereal diseases. Indeed a large proportion of the patients of the neurologist and gynecologist, and not a few of the sufferers who come under the care of the eye, throat and nose specialists, owe their affections to venereal diseases. It might seem as though those especially interested in this subject were exaggerating the importance of these affections, but with such startling statistics to justify them, it is impossible to think of any exaggeration. Undoubtedly, then, the plea that a knowledge of venereal diseases shall be more generally taught in the medical schools and that a more definite knowledge of them shall be insisted on for graduation, is not too much to ask. This seems the only way in which the campaign of education for the masses can properly be begun.

It is sometimes claimed, though not by those of most experience in these matters, that something can be accomplished in the prophylaxis of the evils of venereal disease by what is termed the regulation of the social evil, or of prostitution. For those who sincerely think that any such solution of the problem exists, Dr. Howard A. Kelly's excellent article on the best way to treat the social evil will show the utter groundlessness of their opinion. Such legal regulation has failed, not only in England, where it was applied in a limited way, but also in France where the laws were universally applied. Distinguished authorities as Fournier and others in Paris, after having been advocates of the legal regulation of vice for the prevention of venereal disease, have become outspoken opponents of the system, because they see the evils that flow from it. It breaks down certain moral barriers of principle and gives a false sense of security: the two fac-

tors working together for the increase rather than the decrease of venereal disease.

Unfortunately there are still divisions of opinion among physicians on some of the important subjects connected with venereal diseases. For instance, the old-fashioned teaching that continence was scarcely possible to men and that it was likely to prove detrimental to health has still not been entirely given up. Dr. Keyes, in his article on the sexual impulse, which we shall publish shortly, stated this subject very clearly and laid the foundation for clearer opinions with regard to it than have so far come under our notice. There is no doubt now in the minds of conservative physicians that absolute continence among young adult males is not only possible, but is consistent with the highest form of physical health and of sexual power; indeed, far from continence proving a detriment to sexual power, it is abuses of the sexual faculties that are much more prone to produce the unfortunate impairments which are sometimes, though not so frequently now as formerly, attributed to the effect of sexual continence.

A very interesting phase of the proceedings of the Society for Moral Prophylaxis is to be found in the fact that clergymen and lawyers are associated with physicians in the attempt to bring education to the people on these important subjects and that there is therefore likely to be a breadth of view and a lack of professional narrowness which might otherwise prove a hindrance to the cause. Unfortunately the general public is apt to be suspicious of movements undertaken by members of the medical profession alone, because outsiders are prone to attribute personal motives. Union of the three learned professions, however, will absolutely remove all trace of this unwarranted suspicion and will in many other ways secure a furtherance of the objects of the society. The contributions from the clergymen to the present meeting show clearly how acutely interested are leaders of every denomination in this important matter. This of itself is a very hopeful index of the interest that is likely to be awakened in the general public, whose opinion usually reflects that of the pulpit and press. Let us hope then that success will crown such worthy efforts at social improvement.

APPENDICITIS AND PREGNANCY.

So much has been said about appendicitis in recent years that it would seem as though all phases of the questions involved in the disease must have been well exhausted, and yet there is one important problem, the relationship of appendicitis to pregnancy, which has not attracted as much attention as it deserves.

As pointed out by Dr. Coe, at the meeting of the Harvard Medical Society of New York City for March 25, 1905 (See Society Proceedings, Medical News, this issue, p. 1182), the textbooks have had very little to say with regard to the possible complications consequent upon appendicitis during pregnancy, or of the effect of old appendical lesions during and after labor. Even in the copious medical literature that has grown up around the subject of appendicitis in the medical journals very little has been said about the relation of a diseased appendix to the uterus and its changes during the puerperium.

It is very evident that the presence of an old appendicitis may prove the source of even serious danger during the manifold changes which take place during and just after labor. It is generally conceded now that virulent bacteria may become so enclosed in the tissues as to be rendered perfectly harmless to the individual and yet maintain their virulence for many years. In typhoid fever, for instance, it has been shown that germs may find their way from the circulation into such organs as the bone marrow and, remaining encapsulated for many years, do no harm, though they retain their vitality. An injury to the bone, even of slight degree, may cause the breaking down of the encapsulating tissue with the result that an abscess is produced. Osteomyelitic abscess with typhoid bacilli in pure culture has been known to occur as long as ten years after the attack of typhoid fever, which accounted for the original introduction of the bacilli. Nearly the same thing is true for tubercle bacilli, which may possibly remain encapsulated for even a longer time than typhoid bacilli, and yet maintain their virulence so as to be ready to set up tuberculous inflammation as soon as favorable conditions occur.

Old cases of appendicitis may prove the source of some of the unexplained cases of puerperal sepsis in which there seems to be every reason to think that there has been no infection from without. Not a few cases of puerperal fever present no signs of an infection in the lower genital tract and no offensive discharge from the uterus. In these cases curettage does no good and the material brought away by the curette is evidently not of an infectious nature.

It has been the custom to say that the infection has confined itself to the deeper portions of the uterine muscle, but autopsies have over and over again failed to demonstrate this. It is easy to understand how, during the process of emptying of the uterus, with the great disturbance of intra-abdominal pressure and organic relations which this causes, a hitherto well-encapsulated appendical abscess may be either ruptured or its connective tissue wall so interfered with that virulent micro-organisms find their way on to the peritoneal surfaces.

Instead of always considering that puerperal fever must have its origin from without, it is well to remember the possible existence of previous suppurative or inflammatory conditions of any kind within the abdominal cavity. Whenever the uterine discharge gives no evidence of any infection of the uterine cavity itself or of the genital tract, then it is much more important to consider some other source of infection than the birth passages. Immediately after birth, the disturbances within the abdominal cavity may be such as to make the localizing symptoms much less distinctive than before, but the possibilities in the right iliac fossa must not be forgotten, and if there is anything suspicious in the history of the symptoms, then an exploratory laparotomy in this region may save life and is eminently justified, since so many of these cases prove fatal.

With regard to appendicitis during pregnancy, the necessity for proper surgical treatment can scarcely be sufficiently emphasized. According to the experience of skilled operators, it is possible to do an interval operation even at an advanced stage of pregnancy, without interfering with the course of gestation. If there has been an attack of appendicitis before pregnancy, any suspicious symptoms during the puerperal period must lead to much more care in the treatment of the case than would otherwise be deemed necessary. Delay in these cases is always dangerous and may very easily be fatal. It seems not unlikely that more careful attention to these points would lead to a still further reduction in the mortality from what is called puerperal fever. This represents a consummation always devoutly to be wished, and indeed there is no greater triumph in the medicine of the last two generations than the present low death-rate in this matter, though anything that promises even vaguely to still further diminish, even if only to a slight degree, the puerperal mortality cannot but be a welcome addition to up-to-date medicine.

ECHOES AND NEWS.

NEW YORK.

St. Vincent's Hospital.—At a meeting of the Medical Board of St. Vincent's Hospital, held June 13, 1905, the following appointments and promotions were made: Dr. Edward L. Keyes, Jr., Visiting Surgeon; Dr. Charles F. Fitzgerald, Assistant Visiting Surgeon; Dr. William C. Lusk, Assistant Visiting Surgeon; Dr. William M. Ford, Acting Assistant Visiting Surgeon; Dr. John J. Morrisey, Assistant Visiting Physician, and Dr. Peter Murray, Assistant Visiting Physician.

Straus Milk Depots Open.—The summer season of the Nathan Straus pasteurized milk depots began on June 17. The depots are: 151 Avenue C, 241 East 59th Street, 45 Monroe Street, 169 West Houston Street, 441 West 33d Street, Battery Park, City Hall Park, Tompkins Park, Central Park, Mount Morris Park, Educational Roof Garden, Recreation Pier, East 3d Street; Recreation Pier, East 24th Street; Recreation Pier, East 112th Street; Recreation Pier, Barrow Street; Recreation Pier, West 50th Street. At these depots milk is dispensed to the children of the poor.

Seaside Hospital Open. St. John's Guild opened the twenty-fifth season of its Seaside Hospital, at New Dorp, Staten Island, on June 15. Until the Floating Hospital begins its daily trips, patients for the Seaside Hospital will be met at the Staten Island ferry, foot of Whitehall Street, by a nurse and orderly, and after examination by an inspector from the Department of Health, will be conveyed to New Dorp by boats leaving New York at 10 A.M. and 2.30 P.M. Readers of this notice who may know of sick children needing hospital treatment are invited to communicate with the general agent, at No. 501 Fifth Avenue.

Quarantine Guarding Against Yellow Fever.—As a result of the examination of the seventy-two passengers of the Panama Line steamship Finance, when that vessel arrived at Quarantine this week, from Colon, Robert Burke, an employee of the railroad company for the last four years, and William Pritchard, the ship's butcher, were taken to Hoffman Island for further observation. Both men had high temperatures, and Burke, it was reported, had left the Isthmus because of malaria. Captain George F. Williams, of Baltimore, who had gone to the Isthmus to fill a position, returned on the Finance. Captain Williams said that the fever conditions were spreading, and that many of the Government employees would return to the United States as soon as they raised their passage money.

Loving Cup for Dr. Emmet.—At the residence of Dr. Thomas Addis Emmet, in this city, on Tuesday evening, June 20, some twenty-five medical friends, mostly old pupils, assembled for the presentation of a loving cup for C. D. Emmet. The event was an appendix to the celebration of Emmet's seventy-seventh birthday, May 29, this year, by a banquet at Delmonico's, and reported in the MEDICAL NEWS June 3. The loving cup was not ready for that occasion. The presentation speech was made by Dr. Henry C. Coe, the chairman of the committee of arrangements for the testimonial banquet, who paid a glowing tribute to the simplicity of Dr. Emmet's character, to his successful development of what is best in American gynecology, by his wonderful attention to the details of his work and to his faithfulness to friends. Speeches were also made by Dr. Wm. Polk, of New York; Dr. Baker, of Boston, and

Drs. George Tucker Harrison, A. Palmer Dudley, James J. Walsh and Bache McE. Emmet, of this city. A letter of regret was read from Dr. Dudley, of Chicago. Dr. Emmet said that the loving cup would find an honored place among the family collection of similar mementoes, among which there is especially an handsome silver salver presented to his grandfather by the trustees of St. Patrick's Hospital, Dublin, who were also the officers of the corporation of the city nearly a century ago.

Cornell Commencement.—At the seventh annual commencement of the Medical Department of Cornell University, seventy-four students were graduated, of whom sixty-two received hospital appointments. The annual prize established in memory of John Metcalfe Polk, to be presented at graduation to the three students who have obtained the highest marks for the four years of their work in the college, was awarded to Rollin Hills, who obtained first place, with a total of over ninety-two per cent.; to Milton Goodman Wasch, who obtained the second place, and to Otto Louis Goehle, who obtained the third place. The exercises were held in the college building in the afternoon, and were marked by an address by Dr. George H. Simmons, editor of the *Journal of the American Medical Association*. Following this was a reception to the friends of the college, given by the President of the University and the Faculty of the College. In the evening the Medical Alumni gave a banquet to the graduating class. Dr. Polk, Dr. Simmons, and the President of the Class, Dr. Mallon, responded to toasts. The most prominent of the hospital appointments were as follows: At the Presbyterian Hospital places were awarded to R. L. Hutton, A. W. Baird, C. H. Cooke and B. R. Hoobler; New York Hospital, O. L. Goehle and R. Hills; Bellevue Hospital (Fourth Division), A. A. Walker, J. R. Richards and H. P. Groesbeck; New York Post-Graduate, B. F. Drake; German Hospital, G. L. Rohdenburg; St. Vincent's Hospital, A. M. Wright; Methodist Episcopal Hospital, of Brooklyn, N. B. Zimmer.

PHILADELPHIA.

Changes in Wills Eye Hospital Staff.—The Board of City Trusts, at their last meeting elected Dr. McCluney Radcliffe, formerly surgeon in the institution, Executive Officer for one year; Dr. Horace G. Goldberg, Pathologist, and Dr. G. William Schlindwein Resident Surgeon for one year.

Warning to Dealers in Fireworks.—Coroner Dugan has warned dealers in fireworks that if death results from the use of explosives he would prosecute those individuals responsible for the sale. He told the dealers of the Act of Assembly, June, 1881, 1885, and 1901, because he believes they should know of the laws and the results that follow, if violated.

Bequest.—Louise H. Lyons, who died at Bryn Mawr, June 6, leaving to her niece an estate valued at $60,000, which, upon the death of the niece, will become a part of Bryn Mawr Hospital. Rev. Henry R. Gunning, Jr., and Dr. George S. Gerhard each received $1,000, to be used for the Bryn Mawr Hospital. The West Philadelphia Industrial School received $1,500.

To Prosecute the Prosperous Relatives of Insane.—Assistant City Solicitor Scott has issued more than one hundred subpœnas, to bring the relatives of insane persons thought to be improperly confined at the expense of the State in the Norristown (Pa.) Insane Asylum into court. Several judges have promised to sit on the bench during the summer months, so that these cases can be disposed of before September 1, 1905, by which time Mr. Scott believes 1,200 cases will be tried.

Enteric Fever Increasing.—During the week ending June 17, 118 new cases of typhoid fever have been reported. Twenty-five of the 118 were from the Methodist Episcopal Orphanage, Belmont and Monument avenues, where the disease is epidemic. The first case developed two weeks ago, and since that time there has been a daily increase. The water served to the children has been boiled or was taken from springs, but the matron maintains that it is quite impossible to prevent the children from drinking hydrant water, which is derived from the Belmont filter plants. A sample of the boiled water and the milk have been submitted to the Board of Health for analysis.

Important Events of the U. P. Graduating Exercises.—After the Rev. Dr. George Harris, president of the Amherst college, delivered the oration, and the university hymn was sung, Prof. Howard M. Fussel, on behalf of the classes '85, '86, '87, '88, '89 and '90, presented to the University a three-quarter length portrait of Dr. William Osler. The graduates of the above-named classes number 800, and they had the portrait of Dr. Osler painted as an evidence of esteem for their teacher. The painting was executed by William M. Chase at a cost of $1,500.

The class of 1880, Medicine, U. P., held a reunion and banquet at the Bellevue-Stratford Hotel. Dr. Edmund W. Holmes acted as toastmaster, and the following responded to toasts: Dr. Joseph S. Gibbs, Prof. James Tyson, Prof. B. Alexander Randall, Dr. Lewis H. Taylor, Dr. Henry R. Price, Dr. Charles A. Currie and Dr. Bernard Berens.

Governor Appoints Advisory Board to Aid Dr. Dixon.—The acts of 1905, which created a Department of Health, calls for an advisory board of six members, five of whom shall be graduates of a well-known college of medicine and the sixth an expert engineer. The Governor appointed the following: Dr. Samuel G. Davis, of Lancaster, president of the recently dissolved State Board of Health; Dr. Leonard Pearson, of *Philadelphia State Veterinarian* and secretary of the State Live Stock Sanitary Board; Dr. Adolph König, of Pittsburg, president of the Pennsylvania State Medical Society; Dr. Charles Penrose, of Philadelphia; Dr. B. H. Warren, head of the State Dairy and Food Department; Lee Masterson, of Johnstown, a civil engineer. After the State has been divided into ten districts Dr. Dixon will appoint ten commissioners, each to have charge of a district at a salary of $2,500 a year.

CHICAGO.

Appointment of Dr. Egan.—The secretary of the State Board of Health, Dr. J. A. Egan, has been appointed a member of the committee to inspect State military schools.

Bequests.—According to the will of E. G. Keith, the former banker and capitalist, bequests were made to the Chicago Visiting Nurses' Association, $15,000, and Chicago Home for the Friendless, $5,000.

Transference of Hospital.—The grounds and buildings of St. Francis' Hospital, Blue Island, Ill., have been transferred by the Rev. Francis A. Rempe to the Sisters of St. Mary, St. Louis. The property is valued at $50,000.

Infant Feeding and the Care of the Mother and Infant.—A twelve-page circular on this subject has

been issued by the Illinois State Board of Health, for the guidance of mothers. It deals first with the dangers of artificial feeding and how they may be minimized. It urges the use of pure cow's milk properly diluted and modified, and gives sound advice on the care, exercise, diet and mode of life of the nursing mother, and devotes particular attention to the care of the infant, the danger signals of the first year, and the necessity of cleanliness.

Rush Graduates Large Class.—Seventy-one students of Rush Medical College received their degrees at the annual commencement exercises, held at Mandel Hall, at the University of Chicago, June 16. Sidney Klein received the Benjamin Rush medal for general excellence in examinations. Klein also tied for the Dr. J. W. Freer medal. Walter Wile Hamburger was given the medal, and a prize of $50 was divided between Klein and Hamburger. The other honors were: Fellowship in Pathology, Herman E. Wolff; Fellowship in Medicine, Ludwig M. Loeb; De Laskie Miller prize, Emmet James Howell. The commencement address was delivered by Dr. Ira Remsen, president of Johns Hopkins University.

State of Chicago's Health.—The weekly bulletin of the Health Department, June 10, has the following to say: "A sunstroke in April, and overcoats, wool blankets and another sunstroke in June are the sufficient explanation of the increase of mortality in one of the two most healthful months in the year. The forty-seven more deaths than in the previous week and the ninety-four more than in the corresponding week of 1904 represent increases of 10.4 and 18.4 per cent. respectively in the annual death rates per 1,000 of the population. The erratic weather is chiefly responsible for the twenty-three more deaths from consumption and the twenty-four more from pneumonia than reported during the week of June 3. These two of the most important causes of death exhibit some remarkable features, comparing the two pneumonia seasons of this year and last. Consumption shows an increase of 48.8 per cent. in its mortality rate, while pneumonia shows a decrease of 14.3 per cent.

GENERAL.

Yellow Fever at Panama.—Six additional cases of yellow fever and three deaths have been reported by Governor Magoon; also five recoveries of cases reported some time ago.

Hospital Bill Vetoed.—The mayor of Boston vetoed the bill providing for a hospital in East Boston, but strong efforts, which will probably succeed, are being made to pass it over his veto.

Quack Concerns Deprived of Mails.—Among the Boston quack concerns who have been deprived of the use of the mails are the following well-known and widely-advertised firms: The Dr. Collins Medical Institute, the Dr. Heinck Medical Company, and, most eminent of all, Dr. Longest.

Lectureship on Tuberculosis.—The State University of Iowa has made a new departure in establishing a Lectureship on Tuberculosis in connection with the medical department of that institution and has appointed Dr. J. W. Kime, superintendent of Boulder Lodge Sanatorium for Tuberculosis, at Fort Dodge, as lecturer.

For Stony Wold Sanatorium.—A gypsy encampment fête will be held Saturday afternoon, June 24, at the home of Mrs. Richard Sutro, Portchester, N. Y., for the benefit of the Stony Wold Sanitorium, at Lake Kushagua, N. Y. The proceeds will be devoted to the work being done for consumptive working women, girls, and children at Stony Wold. The women who have charge of the benefit are Mrs. Sutro, Mrs. Joseph Brettauer, Mrs. William Schmidt, Miss June Wheeler, Mrs. Sullivan, Mrs. Herbert Wheeler and Mrs. N. Brill.

Medical Faculty of Johns Hopkins University.—It is stated that Drs. William H. Welch, William S. Halstead, Howard A. Kelly and William Osler, all members of the original faculty of Johns Hopkins University, will meet in London during June, and will then sit for a group portrait, to be painted by Mr. John S. Sargent. The idea originated with Miss Mary E. Garrett, of Baltimore, the benefactress of the Johns Hopkins Medical School, who will bear the expense of the painting. Professor Osler's departure makes the first gap in the original faculty of the medical school.

Cholera Alarm in Russia.—At St. Petersburg the anxiety caused by the danger of an epidemic of cholera is growing. A dispatch from Sosnovice, Poland, reports that deaths from cholera are occurring daily there, and three suspected cases are reported at Tula. The authorities of both these cities have ordered anti-cholera inoculations in the infected regions, but the warm, moist weather prevailing is favorable to the spread of the disease. A telegram from the medical superintendent at Harbin to the general staff states that the cholera situation at Harbin is grave. There were before the outbreak of the cholera 26,000 wounded and sick in the twenty-one hospitals, which are now full. He urgently asks for medical aid to combat the cholera.

Massachusetts Medical Society.—The annual meeting of the Massachusetts Medical Society was held in Boston Tuesday and Wednesday, June 13 and 14. Tuesday afternoon, at Ware Hall, in the Medical Library the sections in Medicine and in Surgery were held. The following papers were read: In the Medical Section—Dr. Geo. W. Gay, chairman. "Some Features Connected With the Outbreak of Smallpox at North Adams in 1904," by Dr. L. A. Jones, of North Adams; "Ocular Vertigo, of Interest to the General Practitioner," by Dr. B. P. Croft, of Greenfield; "Clinical and Laboratory Study of the Therapeutic Value of Hydrochloric Acid in Diseases of the Stomach," by Dr. R. F. Chase, of Brookline; "The Medical Treatment of Hyperacidity and Gastric Ulcer," by Dr. F. C. Shattuck, of Boston. Dr. Lewellys F. Barker, Professor of Medicine in Johns Hopkins University, gave an address on "Methods in Medicine." In the Surgical Section—Dr. Geo. H. Monks, chairman. "Applied Anatomy of the Frontal Sinuses," by Dr. H. P. Mosher, of Boston; "Symptoms and Treatment of Diseases of the Frontal Sinuses," by Dr. F. C. Cobb, of Boston; "What the Suburban Surgeon is Doing in the Abdomen, and How He Does It," by Dr. C. E. Durant, of Haverhill; "Early Diagnosis of the Surgical Diseases of the Urinary Tract," by Dr. Benjamin Tenney, of Boston; "The Causes of Disability After Fracture of the Lower Leg," by Dr. F. J. Cotton, of Boston. Drs. H. A. Lothrop, S. J. Mixter, M. H. Richardson took part in the discussion of these papers. In the evening "The Shattuck Lecture" was given by Russell H. Chittenden, Ph.D., of New Haven, on "Some Problems of Intermediary Metabolism." A reception was given by the Society to its president, Dr. A. T. Cabot at the close of the session. Wednesday morning, following the business meeting at 9 A.M., was given over to a demonstration of clinical and laboratory methods used in medicine.

This was organized by Dr. W. T. Councilman, and was divided up as follows: "Methods of Diagnosis in Diseases of the Ear," by Dr. C. J. Blake; "Methods of Physical Diagnosis in Surgery," by Drs. J. B. Blake and C. A. Porter; "Methods of Diagnosis in Skin Diseases," by Dr. J. T. Bowen; "Methods of Physical Diagnosis in Internal Medicine," by Dr. Richard Cabot; "Demonstration in Pathological Anatomy," by Dr. H. A. Christian; "Methods in Diagnosis by Means of X-ray," by Dr. E. A. Codman; "Methods of Diagnosis in Diseases of the Nose and Throat," by Dr. Algernon Coolidge, Jr.; "Methods in Examination of Urine," by Dr. R. L. Emerson; "Methods in Bacteriology," Dr. H. C. Ernst, "Methods in Estimating Coagulation Time of Blood," by Dr. A. H. Gould; "Methods in Examination of Blood," by Drs. R. C. Larrabee and A. E. Austin; "Methods in Legal Medicine," by Dr. Timothy Leary; "Methods in Examination of Sputum," by Drs. W. H. Smith and F. T. Lord; "Method of Study of Blood Pressure," by Dr. F. T. Murphy; "Methods in Cytodiagnosis," by Dr. Percy Musgrave; "Methods in Gastric Diagnosis," by Drs. Franz Pfaff and E. P. Joslin; "Methods in Examination of Feces," by Dr. J. H. Pratt; "Methods in Neurology," by Dr. J. J. Putnam; "Methods Used in Board of Health Examinations," by Drs. Theobald Smith and H. W. Hill; "Methods of Diagnosis in Genito-Urinary Diseases," by Dr. Paul Thorndike; "Methods of Rapid Anatomical Diagnosis," by Dr. J. H. Wright. This demonstration was of a most instructive nature, and was a great success. The patients who had been asked to come appeared almost without exception, and seemed to enjoy rather than dislike, being demonstrated. In the medical room were about twenty-five patients, seated or reclining about the room, with a placard over their heads, telling what the condition was. The list included heart cases, all kinds of leucemias, pernicious anemias acromegaly, arthritis deformans, Raynaud's disease, and others. In the stomach room there were enough cases so that a stomach was washed out and a complete examination made about every fifteen minutes. Dr. Charles A. Drew, of State Farm, Bridgewater, gave the annual discourse, after which dinner was served. Among the speakers were: Mr. Louis A. Brandeis, Lieutenant-Governor Gould and Rev. Dr. Charles E. Worcester, of Emanuel Church, Boston.

SOCIETY PROCEEDINGS.

SOCIETY OF SANITARY AND MORAL PROPHYLAXIS.

Stated Meeting, held April 14, 1905.

Stephen Smith, M.D., in the Chair.

A Constitution and By-Laws were adopted.

Education in Sexual Hygiene. The Rev. John W. Elliott, of the Hudson Guild, made a few remarks on this subject. Speaking, he said, as a layman whose experience had been largely confined to the teaching of young men and boys, he stated that he had repeatedly discussed this question of sexual hygiene with very gratifying results. He was not in favor of the promiscuous discussion of this subject, and it should only be undertaken by those who were in close relation to young people. Otherwise, many would be drawn to such discussions who were only actuated by motives of curiosity, and who would receive absolutely no benefit therefrom. The usual college addresses on the subject, for example, were often looked upon in the light of a joke by the students. Neither did he favor the circulation of printed matter on the subject among young men and boys by the teacher or parents. It could only be dealt with effectively by some one who was in very close personal relation to those with whom he spoke. It was most effective when brought up in connection with the subject of morals in general, and should not be dealt with separately. Dr. Elliott said he would never think of discussing the subject of sexual hygiene by itself. There were three topics that young men were especially interested in: First, friendship; second, the sexual question, and third, what they were going to do in the world. The speaker believed in associating this question of sex with the other subjects that vitally interested the life of the young men, and not in presenting it as something peculiar or special. It was, of course, a subject of delicacy, but that should be taken for granted, and handled accordingly. It could not be taught effectively without a deep sense of reverence. In a religious society, in all societies connected with churches, synagogues, etc., wherever there were bands of young men gathered together in relation with older men, there the subject could be discussed, but this should not be done in a purely scientific way, because it was not a purely scientific subject. Very little teaching about the sex was necessary. So far as the facts went, they were well enough known. What was needed was to give the young men a proper attitude toward the facts they already knew. Certain sentiments, certain feelings had to be controlled in regard to those matters, so that they could overcome the passions that naturally existed. It was not so much a question of intellect or of imparting information, and the facts should be dealt with in a plain, common sense, straightforward way. They should be given in the manner of a friendly talk, explaining the dangers of the wrong kind of relationship. In a general way, the average boy who had been brought up in New York already knew the facts, and in dealing with them we should never deviate from the truth, and carefully avoid all exaggeration. Let the physical side of the question, with its horrors—and certainly they were bad enough—stand where it was, without exaggeration.

The main object of this kind of teaching should be to create among groups of young men a spirit that would stand for the right kind of living, and look down upon the wrong kind. Make the young men public-spirited; make them feel proud of a life of perfect uprightness. Then, while some would go to the dogs in spite of everything, the majority would come out all right.

The Sexual Necessity.—By Edward L. Keyes, M.D. A paper upon this subject was presented and will appear in an early issue of the MEDICAL NEWS.

The Church and Social Prophylaxis. By Rev. Henry A. Brann, rector of St. Agnes' Church. This paper will also be published in an early issue of the MEDICAL NEWS.

Ignorance, Perversion and Degeneracy.—Frank Moss, Esq., Professor of Medical Jurisprudence in the New York College and Hospital for Women, said he thought the subjects of perversion and degeneracy were within the scope of this Society, and that the prevalence of these evils was largely due to ignorance. There was sexual uncleanliness in thought as well as in act, bringing in its train most disastrous results. There were in New York well known centers

for the meeting of sexual perverts, many of them male prostitutes who suffered from different forms of perversion, and their number was constantly augmented by young men from the city and country who had fallen into the practice largely through ignorance and curiosity. If some way could be devised by which young people could be instructed as to the nature of their sexual organs, of the glory of their true use, and the evils that followed their abuse, there would be less sexual uncleanliness and sexual perversion. The highest mental and physical development of life, and all the sweetness of home centered about the true use of the sexual powers, while their perverted use gave rise to untold misery. These facts should be brought home to the young people. The education should begin in the home; it should be taken up by the churches and Sunday-schools, and perhaps on a broader scale in the public schools.

The Rev. Joseph Silverman said that the social problem under discussion was as old as the universe, and its solution would not be found in boys' clubs or the confessional. It was necessary to go further back, and educate the parents in the duty they owed their children to bring them up pure in mind and body. Impure acts were always preceded by impure thoughts, and against these the child could only be shielded by early home influence. Next to the parents, the family physician might be a potent factor in limiting the social evil, but as a rule the physician chiefly concerned himself in curing disease, and not in teaching people how to prevent it. This Society, Dr. Silverman said, had a great problem to solve and a great duty to perform. It could expect very little help from the pulpit, which was not the place for the discussion of these subjects. The successful outcome of this work would regenerate society, purify the home and elevate marriage. There was only one legitimate use for the reproductive organs, and that was the reproduction of the species. Just as the teeth were intended for the mastication of food, and the stomach for its digestion, so the sexual organs were intended for the reproduction of the species. They were never intended to be used merely for pleasure, and their use for that purpose was the source of much evil. This lesson should be impressed upon young people, and no human being had the right to use the sexual organs before marriage in any way whatsoever.

Dr. J. Milton Mabbott said that as a physician he disagreed with the statement made by Dr. Silverman, that the sexual function should be used solely for the purpose of the reproduction of the species. Self-preservation was the first law of nature, and reproduction was the second. The sexual appetite was so strong that its proper indulgence between husband and wife was natural and allowable.

William A. Purrington, Esq., said the members of the Society, as he understood it, had come together for a practical purpose, and not as moralists or missionaries. If anything practical was to be achieved, it had to be done in the line of educating the public. If people could be made to realize that certain diseases were loathsome, and if the medical profession could be made to understand that it was wrong to belittle the gravity of such diseases and indecent to attempt to conceal them under false names, then we might arrive at some result. Medical secrecy was a shield, and not a sword. Drunkenness and even seduction were once the fashion, but those vices had had their day, and so it would be with the sexual vices, when the people were once taught to see them in their proper light.

Regular Meeting, held May 19, 1905.

Stephen Smith, M.D., in the Chair.

Prophylactic Value of Normal Marriage.—Dr. Andrew H. Smith read this paper, which will be found in full upon page 0000 of the MEDICAL NEWS.

The Best Way to Treat the Social Evil.—Dr. Howard A. Kelly, of Baltimore, Md., read this paper. This appears in full on page 0000 of the MEDICAL NEWS.

Charles Sprague Smith, in opening the discussion of these papers, said that as a member of the old committee of fifteen he had been invited by Dr. Morrow, the newly elected chairman, to take part in the discussion. He said that the Committee of Fifteen had reached practically the same conclusions as had Dr. Kelly, namely they had in common concluded that very few if any evils were prevented by legislation. Counter-attractions, he said, were the lines along which there seemed to be the most hopeful outlook. Paramount among these were, first, the wage question, and second, the housing of the poor. Parks, playgrounds, social opportunities, privileges to visit the theater, club life, and so on, were some of the factors suggested by the speaker. He said that the community at large was responsible for fixing the wages of the working girls, the class from which as a rule, the prostitutes are gathered. It is, in the end, the community at large which is responsible for forcing into prostitution of these young girls. The speaker agreed with the readers of the papers, who were of the unanimous opinion that an invaluable adjuvant to the establishing of counter-attractions, already referred to, was the education of the young women and the young men. Few, indeed, if any, of either sex had the remotest idea of the fearful ravages which might be wrought by the transmission of disease from one infected individual to others. The young women of the country should have impressed upon them the glorious privileges of wifehood and of motherhood. Raids, in the speaker's opinion, were under no conditions productive of good. He believed that in the present state of evolution of the subject, houses of prostitution should be left alone as long as they do not unnecessarily offend the public.

Dr. David Blaustein said that he had listened with great interest to the two papers and was particularly interested in what Dr. Kelly had said about more light and more air in the tenements of New York. Nearly all of the moral and religious problems in the opinion of the speaker, were to be settled in a proper solution of the methods and means of housing the poor, rather than by the number of raids, by police justices or by moral and social societies. To deal with effects one must seek the causes. These are to be found in the prevailing low rate of wages for young women in the City of New York. The luxurious life of the wealthy, he said, was largely responsible for the evil conditions existing among the poor. If the "simple life" were practised more conscientiously by people of means and more attention paid to the development of the down-town clugs, there would be fewer prostitutes and less crime in this city. He thought that one should not be so delicate in speaking of these matters to young people. It appeared to him that when children are prepared for confirmation, they should at the same time be acquainted with these serious problems.

Dr. Prince A. Morrow, in accepting the responsible trust of the Chairman of the Society, said:

I will only detain you with a few words. In the first place, I wish to express my appreciation of the high honor conferred upon me in being selected to preside over the deliberations of this Society. My appreciation of the honor is only equaled by my sense of the weighty responsibility imposed and I can only pledge to the discharge of the duties of this position whatever of intelligence, of zeal and of fidelity I may possess.

It is conceded that the work before this Society is large and important; it is exceedingly difficult and delicate; it is distasteful even, on account of the unsavory character of the subject. It can only be undertaken from a sense of duty, but work undertaken from this motive often yields the largest and most beneficent results.

This work represents an innovation; it contemplates a reform in our educational system; it aims through enlightenment of the public to correct evils which are largely the consequence of ignorance; it necessarily runs counter to deep-rooted customs and habits of thought. In the pursuance of this work we must expect to encounter opposition; probably meet with reverses; possibly we may make mistakes, but at the same time the object before us is sufficiently worthy to stimulate us to make every effort to carry on this work to a successful issue.

I may say one or two words in regard to the policy of this Society, which is to be pursued along well-defined lines with a definite object in view. Fortunately we have an executive committee, one of whose functions is to map out the order of work proposed by this Society, and while the subjects brought before the Society are naturally more or less connected and related, it is intended that they shall be taken up consecutively and in order that each shall be carefully studied and thoroughly threshed out before arriving at conclusions which may be promulgated for the education of public opinion. It is important that these subjects should be announced in advance in order that those who read papers and join in the discussion shall bring to bear the results of serious study, of matured deliberation and well considered judgment. The questions involved are too important to be disposed of by offhand impressions or by snap solutions.

It is understood that the prophylactic work of this Society shall be inaugurated along educational lines, and since its most important feature is the instruction of the rising generation in a knowledge of sexual physiology and hygiene, this subject will probably constitute the order of business of the next meeting. The sexual education of boys and young men must be studied from many points of view, as for example: What should be the nature and scope of this education? At what age should it be given? Should it be progressive according to the age of the individual? Should it begin in our scholastic centers, our high schools, colleges and universities? Should the teaching of sexual physiology be incorporated in our text-books on elementary hygiene, etc. Also there must be considered the difficulties to be encountered from public prejudice or even opposition to this instruction.

Another branch of this educative work is to be taken up, viz., the sexual education of the great body of the young men of the working classes who need it perhaps, even more. This education should be essentially democratic, there should be no class distinction. How and through what agencies can we reach this large class? Should this instruction be individual or collective? and, Should the young women of this class, from which the ranks of prostitution are largely recruited, receive this education? All these, it will be admitted, are most important questions which require for their solution the knowledge of men and women whose social work brings them in direct contact with the living conditions of the masses of the people. This prophylactic education should also extend to the army and navy, since it is recognized that there is no other class of diseases which are so potent a factor in the impairment of physical efficiency of the men and the general demoralization of the service as the venereal class. The question has also most important economic aspects.

Other subjects that will properly come up for study and discussion will only be briefly alluded to—the importance of throwing sanitary safeguards around marriage. The question of penalizing the transmission of veneral diseases in the marriage relation—the question of placing venereal diseases on the same plane of sanitary control as other infectious diseases dangerous to the public health—this involves, of course, the question of "the medical secret" which dominates the situation so far as obligatory notification is concerned.

The subject of prophylaxis by treatment is scarcely subordinate in importance to that of education and demands careful study and consideration.

Finally, I may allude to the vast number and variety of questions which will come up in connection with the social evil and which cannot be ignored in any intelligent or comprehensive scheme of prophylaxis.

In conclusion, gentlemen, I may say that, although the work before us is laborious and difficult, I have great confidence in its ultimate success. Already there has been a marked awakening of interest on the part of the medical profession. As a favorable augury the fact may be noted that there have been more scientific papers on syphilis and different phases of gonococcus infection read within the halls of this academy during the last twelve weeks since this Society was formed, than in the previous twelve years. I believe this will fill a long-felt need and I have faith in its success because it is *right*.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regular Monthly Meeting, held March 25, 1905.

The President, Charles Schram, M.D., in the Chair.

The scientific business of the evening was opened by the reading of a paper by Dr. Henry C. Coe on appendicitis complicating pregnancy and the puerperium.

Importance of Appendicitis in Pregnancy.—Dr. Coe said that the importance of any affection of the appendix, during pregnancy, can readily be understood, and yet very little has been said about the subject in the text-books or in medical journal literature. Hancock, in 1848, reported a perityphlitic abscess, the term by which appendical suppuration was called in those days, which he opened by incision. Dr. Howard Kelly, in his latest book on appendicitis, says that undoubtedly many mild cases of appendicitis occur during pregnancy, but are missed, because it is rather expected that certain pains will develop as a consequence of the enlargement of the uterus. Severe cases that end fatally, especially during the puerperium, are, in his opinion, likely to be considered as puerperal sepsis. This error must be carefully guarded against.

Frequency of Appendicitis.—The obstinate constipation from which many women suffer during pregnancy is likely to be a source of appendical disturbance. Certainly, if there has been any tendency toward appendix inflammation before pregnancy, then conditions are likely to favor recurrence. Such recurrences, Dr. Coe does not believe to be so rare as they are usually considered. On the contrary he believes that there

may be a toxemia set up by low grade inflammations of the appendix, and, with Dieulafoy, he thinks that this may form one of the toxic conditions of serious import for the pregnant woman. Formerly these conditions were thought to be all renal in origin, but now many sources of toxemia are considered to be in the etiology of toxic conditions leading up in various degrees to eclampsia.

Character of Attack.—Most of the cases of appendicitis occurring during pregnancy are undoubtedly mild. They take place without necessarily causing any interruption of the pregnancy or even producing serious conditions beyond the passing discomfort. Dr. Coe has recently seen in a case in which there were several attacks of discomfort in the appendical region, but without any febrile reaction. These attacks, however, became so severe that at length the removal of the appendix was determined upon. The organ was found to be atrophic and adherent, and after its removal there were no further disturbances. The pregnancy continued normal to term. It is important to remember that the right ovary may be tender and give symptoms simulating appendicitis, and in cases of prolapse the discomfort may be quite severe, and more or less paroxysmal. This must not constitute a reason, however, for dismissing any of these cases without the suspicion of possible appendicitis being aroused and careful examination with that idea being made. In a recent case under Dr. Coe's care, the tenderness seemed to be so deeply seated that it appared surely to come from within the pelvis and probably to be of ovarian origin. It proved, however, to be appendicular.

Vaginal Section.—In a recent case in which there was a large exudate covering much of the lower part of the right side of the abdomen, the inflammatory material was evacuated by means of a vaginal incision. The reaction after this was good, but after two weeks an abortion occurred, and then the patient became entirely well. These vaginal incisions do not seem advisable except in certain cases where the abscess points in this direction, but this experience would seem to show that they can be made use of with safety and good results.

Appendicitis During the Puerperium.—It is easy to understand that if there is any inflammatory exudate around the appendix during the changes of intra-abdominal pressure, which takes place after the uterus has contracted, there may be a lighting up of peritonitis. Undoubtedly some of these cases represent what is supposed to be post-partum sepsis, in, which, however, the most careful examination does not show any infection of the uterus itself or of the genital tract. In these cases, if there is suspicion of appendicitis, an operation should be done, as, of course, the discovery of the real origin of the infectious material may prove life-saving. In a recent case where curettement of the uterus failed to reveal any cause for the septic symptoms present, an intensely inflamed appendix was found, and this rather than any endometritis was considered to be the origin of the peritonitis that had been observed. In another case, suspected to be appendicitis, a suppurating ovary was found and the appendix could not be found. Apparently it had sloughed off and the products of the suppuration had infected the neighboring genital tract.

Frequency and Diagnosis.—The frequency of appendicitis is not greater during pregnancy than out of it. Perhaps, indeed, it is less frequent because in women the appendix is not infrequently affected by extension of inflammation from the adnexa, and such infected women are likely to be sterile. It is rather easy to make mistakes with regard to the existence of the affection. In one case, recently seen, a patient was supposed to be suffering from typhoid fever, but there was immediate improvement after the incision of a large abscess. It is difficult to map out the induration of appendicitis in pregnant women, but if the patient is put on the left side in order to allow the uterus to drop out of the way, this can usually be accomplished. Acute septic conditions in the puerperium often come from the appendix. Subacute infections come from the ovaries. It is not always easy to differentiate ectoptic pregnancy from appendicitis, and sometimes it will be found that the appendix is adherent to an ectopic gestation sac. Intrapelvic appendicitis is extremely difficult to differentiate from other pelvic affections, and at times may be mistaken for intrapelvic phlebitus, or may give rise to the suspicion of some infectious thrombosis of the intrapelvic veins. In these cases, however, unless there is confirmation of the suspicion by the occurrence of phlegmasia in the leg, it is easy to suspect appendicitis and treat for that condition. Undoubtedly the statistics of appendicitis in pregnancy, as so far given, have been too unfavorable. It has been said that most of the mothers perished and very few of the children lived. As a matter of fact, however, if the case is taken in time, the great majority of the mothers will be saved and the pregnancy will continue to term. On the other hand, another important reason for not delaying operation in these casese is that at times, a dead fetus has been found with the colon bacilli present in the cord and evidently the cause of the death as the result of communication of the infection from an untreated appendicitis. Marks has suggested that in the later months of pregnancy premature labor should be induced and then the appendicitis treated. Pinard's advice is better, however. He says, treat appendicitis without any attention to the woman's condition, and it will usually be found that the pregnancy will go on to term. The advisability of operating even for mild symptoms that occur early in pregnancy has been suggested in order to avoid the dangers of the subsequent course of the case. Unless there have been well-marked symptoms, however, the appendicitis may only have been catarrhal and not necessarily suppurative.

Prophylaxis.—Constipation is the main cause of appendicitis, undoubtedly, and hence it is of extreme importance that the bowels of the pregnant woman should be kept freely opened, and that her diet should be carefully regulated with the idea of preventing any complication from this portion of the intestinal tract. Less meat should be taken, as a rule, than usual, and exercise should be strongly advised, and indeed insisted upon. If there are well-marked symptoms of appendicitis, then an interval operation should be done in spite of the existence of pregnancy in order to save the woman from subsequent dangers.

Dr. Frank Daniels, in opening the discussion, said that appendicitis in pregnancy is undoubtedly rare, and while its presence might be overlooked in the puerperium, he is not able to recall a case in which such a mistake was likely. It is evident that the rule must be to treat just as in non-pregnant cases and in individuals where there have been mild symptoms, an operation should be advised after pregnancy in order to avoid the dangers during a subsequent pregnancy.

Dr. Schram said that no case of appendical origin should be considered as mild in a pregnant woman, since the adhesions which protect the patient are likely to be ruptured during contractions of the uterus at the end of pregnancy. There seems no doubt that many of the cases of sepsis following labor for which no adequate cause can be found, are really due to the appendix. Certainly in all cases of post-partem sepsis, symptoms of appendicitis should be looked for in their history.

Dr. H. N. Vineberg said that mild cases of appendicitis complicating pregnancy are not infrequently reported, but of some the diagnosis may be doubted. In severe cases operation is indicated just as if the woman were not pregnant. Personally he has operated upon five patients, and all of his patients have carried their children to term.

Acute Pyelitis.—Dr. Vineberg said that an important element for differential diagnosis is acute pyelitis. This occurs not infrequently in pregnant women, and when it effects the right kidney may simulate appendicitis. In a recent case there was profuse tenderness on the right side of the abdomen with high temperature, but bimanual examination showed that the tenderness was especially localized in the kidney region. A large quantity of pus was found in the urine of this case. Where pyelitis is present, there is apt to be some frequency of micturition. In some cases, where appendicitis seems to be present, operation fails to show any affection of that organ and occasionally the discomfort continues to a serious degree until abortion takes place. Another important differential factor is cholecystitis. An operation in these cases can be done, and yet the patient carry her child to term.

Dr. Battey said that in a case recently under observation appendicitis developed in the eighth month, but with care the case was carried over the puerperal period and a successful operation performed afterward. In another case, operation was done at the sixth month and the incision closed without sutures, healing by primary intention.

Dr. Tilton said that the combination of appendicitis and pregnancy must be rather rare, since it is seldom reported, and occasionally, as in a recent case, other conditions may be mistaken for appendicitis. A sloughing fibroid may well give all the ordinary symptoms.

Dr. Walker said that operations done in the fourth and fifth month with the evacuation of acute abscesses had in his experience been followed by complete recovery and carriage of the fetus to term.

Dr. Coe, in closing the discussion, said that occasionally pyelitis may be of intestinal origin; hence, the necessity for care of the bowels so as to avoid anything like toxemia. Besides pyelitis inflammation of the ureter on the right side should be remembered as one of the things likely to be confounded with appendicitis.

Acute Polyarthritic Gout.—Dr. Potter said that when gout involves a number of joints, it sometimes becomes rather difficult to decide as to whether the disease is really gout or rheumatism. In a patient recently seen at the City Hospital, the diagnosis at first made was rheumatism, but as the inflammatory symptoms wandered from the right knee to the left knee and then to the shoulder and finally to the ankles, and as salicin used in large doses had no effect the patient was put on colchicin when there was a prompt recovery. In this matter it is well to remember that the first attack of gout is almost never polyarthritic but subsequent attacks may involve a number of joints. It would seem cases of chronic rheumatism are really gout, while even a few cases of acute rehumatism are gouty in their nature.

Other Diagnostic Difficulties.—In a subsequent patient where the conditions seem to be not unlike that observed in the patient just mentioned, no improvement took place under colchicin. Careful inquiry, however, showed that the patient had suffered from gonorrhea not long before, and examination showed the presence of ulcerated spots in the urethra, and after these had been touched with nitrate of silver, the arthritic symptoms promptly improved. It seems not unlikely that a number of cases of so-called chronic rheumatism and gout are really urethral in origin. In the treatment of ordinary rheumatism, Dr. Potter has found that the free use of salicin up to 400 or 500 grains a day is a very efficient remedy, and when this does not give results, there is always a suspicion of the cases being something else than ordinary rheumatic arthritis. It takes some courage at the beginning to give doses as large as this, but patients bear them very well and symptoms of intoxication are seldom seen.

Frequency of Gout.—Dr. Tilden Brown said that gout was rather frequent in this country, and that ordinary clinical signs are not always sufficient to differentiate it from rheumatism. An excellent and pathognomonic symptom, however, is a low excretion of urea. At times the urea may run so low that a suspicion as to the presence of kidney disease may be aroused. The rhythm of urea excretion constitutes a warning as to the approach of an attack of gout that may be of service for prophylactic purposes or at least beginning treatment so as to lessen the severity of the symptoms.

Gout in This Country and in England.—Dr. James J. Walsh said that gout is much more frequent in this country than has been thought, and that the number of cases is not so far behind those that occur in England, supposed to be the great home of gout. A comparison of the number of cases of gout that have been under treatment at Johns Hopkins in the last fifteen years with the sufferers at St. Bartholomew's Hospital for the same period, shows how nearly these figures approach each other. While ordinarily it would be thought that gout was three or four times as common in England as it is here, there were really only four cases under treatment at St. Bartholomew's for every three cases under treatment in this country. In this country people earn their gout rather than inherit it. The two most prominent causes are the consumption of malt liquors and the absorption of lead. Some people are so much more susceptible to lead than others that it is by no means necessary that they should have been exposed for a long period nor have absorbed very much of it in order to produce serious symptoms.

Differential Diagnosis of Arthritis.—The three forms of arthritis which are not directly septic in origin, nor due to such a microbe as that of gonorrhea or of the infectious diseases, are not easy to differentiate. Dr. Osler confessed that at Johns Hopkins one patient had been treated as a sufferer from rheumatism on three different admissions to the hospital before it was discovered that tophi were present, and that the affection was really gout and not rheumatism. As a rule, when the smaller joints are attacked, the affection is not true rheumatic arthritis, but is either gouty in origin or is due to one of the forms of arthritis deformans. If the cervical vertebræ or the jaws become affected, then the patient is almost sure to be suffering from arthritis deformans.

Infectious Arthritis.—Dr. Nathan said that the differentiation of gout from rheumatism by the therapeutic test makes the diagnosis rather dubious. The salicylates are by no means always a specific for rheumatic arthritis, nor does gout always yield to colchicum and its derivatives. Many of the forms of arthritis are, of course, due to various infectious agents. It would seem as though no diagnosis of gout should be made unless tophi are present. As a rule, the only assurance of the diagnosis is to have the patient under observation for some time. Where there is doubt, careful examination should be made of the various avenues by which infectious material may gain entrance to the body before any decision should be arrived at.

Dr. Daniels said that it is very difficult to formulate

a definition of gout and rheumatism, and there seems to be no doubt that gout is much more frequent in this country than used to be considered. With regard to the presence of tophi, they occur only in later stages of the disease, and it would seem the diagnosis should be possible before this period.

In closing the discussion, Dr. Potter said that the diagnosis of the various forms of arthritis is as yet very obscure. At the present time, the three categories, infectious, rheumatic and gouty arthritis seem to comprehend all the known cases, but it is not always easy to decide in which category the particular affection must be placed. The therapeutic test, while not infallible, is undoubtedly of great service. Colchicin will relieve most cases of gout very promptly. On the other hand, salicin if given in sufficient doses, will relieve the symptoms of acute rheumatism. In very large doses, even of 500 grains per day, serious results from its administration are seldom seen. There may be eruptions and ringing in the ears, but nothing like the symptoms of collapse so often seen with oil of wintergreen or sodium salicylate. There is no good reason why this therapeutic test should not be used to help in the diagnosis of what always remains even with this aid a difficult question.

Simulation of Ectopic Pregnancy.—Dr. Coe reported a case of cramp-like pain in which examination disclosed the presence of a well-defined mass on the left side of the abdomen. Ectopic gestation was suspected, but on operation, the condition proved to be one of adherent intestine. The adhesions were very firm and had prevented the free movement of feces, yet the onset had been sudden, and there had been no fever, though very much discomfort. In private practice a doubt with regard to the condition that is present may make the surgeon averse to operation, but wherever a mass is the result, if symptoms are at all acute, then operation should be performed. Otherwise, there is danger of allowing a serious condition to develop to such a stage that the patient's life is put in danger and even delay may involve serious risk.

Dr. Vineberg, in discussing the case, said that the leucocyte count was considered at one time as sure to be helpful in the recognition of inflammatory conditions as contrasted with mechanical difficulties within the abdomen. Further experience, however, has shown that the leucocyte count can be very misleading. The reaction which causes an increase in the number of leucocytes is a very individual matter. At times in ectopic gestation the leucocyte count is high, though, as a rule, it is low. On the other hand, in inflammatory conditions, under exceptional circumstances, the leucocyte count may be low. Dr. Vineberg illustrated by personal experiences, the necessity for extreme care in the examination of suspected cases of ectopic pregnancy, since there may be rupture during the manipulations. In one case, the presence of intra- and extra-uterine pregnancy at the same time made the question of diagnosis extremely difficult, and the rupture took place followed by severe hemorrhage, so that the patient became pulseless and was only saved by injection of normal salt solution. The necessity for carefulness in such cases cannot be overemphasized. The whole subject of extra-uterine most difficult matters with which the gynecologist has gestation still remains in some of its phases one of the to deal.

Lean and Hungry Doctors at Bellevue.—"Four chickens for the medical houststae," "forty chops for fifty-two doctors," constituted the journalistic headlines descriptive of the meager fare that the internes at Bellevue Hospital are now having under the sway of the gentle hospital dietitian.

CHICAGO ORTHOPEDIC SOCIETY.

Stated Meeting, held March 28, 1905.

The President, John Ridlon, M.D., in the Chair.

The Bartlett (Boston) Machine for the Reduction of Congenital Dislocations at the Hip; being a Report of the Cases Operated on in Chicago.—Dr. John Ridlon read a paper on this subject before a recent meeting of the society, in which he stated that a year ago he reported on the results in 94 congenitally dislocated hips operated by the manipulative method. Twenty-nine were operated by Lorenz, and 65 were operated by him. He expressed the opinion at that time that the number of perfect anatomical replacements from this method would not be more than from 10 to 20 per cent.; that the number of failures in selected cases should not be more than 20 per cent.; and that the remaining 60 to 70 per cent. should be what are called "good results" by Lorenz, and include all those cases where, despite the fact that a normal anatomical replacement does not result, the patient stands straighter and walks better than before the operation, the anatomical relations being such that the patient may be expected to gradually improve with the passing of years instead of gradually grow worse, as is the case in unoperated patients. Since his report, Dr. Albert Hoffa, professor of orthopedic surgery in the University of Berlin, has visited and operated in this country. He believes that the manipulative replacement should be made in all cases of suitable age; and if perfect anatomical replacement be not accomplished, a second and even a third attempt be made; if this fails, a cutting operation should be performed. He stated that a perfect anatomical replacement by the manipulative method should not be expected in more than seven per cent. in bilateral cases, and 30 per cent. in unilateral cases. In his paper a year ago, he also pointed out the accidents that happened in making this "bloodless" operation, and the risks that must be considered when making it. More recently, Sherman, of San Francisco, has published his observations on Lorenz' work in that city, together with the conditions which he found in making a cutting operation on one of the Lorenz cases. He condemns the bloodless replacement in unmeasured terms. During the year that has passed, one or two of the cases that were reported by Dr. Ridlon as perfect have slipped, and are now classified as good, and an equal or greater number that were reported as good have become perfect; that is to say, cases that were reported as anterior transpositions because the femoral head could be seen and felt in the groin when the plaster splint was removed have under treatment become perfect anatomic replacements, as demonstrated by palpation and the Roentgen picture. The percentage of results remains about the same, improving slightly with increased wisdom in selecting the proper cases for operation, and with increased skill in manipulative technic from extended experience. But there are many things that we have not yet learned, namely: We do not know among the younger patients, those under three years of age, which ones will prove perfect anatomical replacements, and which ones will prove loose joints and become supracotyloid, or subspinous. In the older patients, those over four years, we do not know which ones are possible, and which ones are impossible; which ones will be perfect, which ones anterior, and supracotyloid, and which ones failures. We do not know the age limit

for a successful operation. After describing the Bartlett machine for reducing congenitally dislocated hips, and reporting cases in which this machine was used, the author concludes that the cases are too few to warrant any reliable conclusions, but it may be of interest to discuss impressions of the machine and its use. His attitude toward the machine in the beginning was somewhat overcritical. So many catchy theories and ingenious orthopedic contrivances have come out of Boston during the past twenty-five years, and ultimately have exploded or been proved worthless, that he had little faith in the machine. He believes that a strong patient and skilful operator can, by the manual method, reduce any congenitally dislocated hip that is reducible by any machine or any cutting method. But the machine does make the reduction easier for a strong man and possible for any man. He believes it greatly diminishes the risk of fracture of the neck or shaft of the femur. It diminishes the risk of nerve injury and paralysis and of rupture of the femoral vessels and gangrene, provided only suitable cases for operation are selected. Otherwise it adds to the risk. When the femoral head is displaced upward, more than two inches and all of the soft parts are structurally shortened to meet that position, it is not to be expected that replacement can be effected and retained by any method without serious risk to the limb. The muscles may be stretched or torn with impunity, but not so the blood vessels and nerves. The machine places an enormous force in the hands of the operator, and if he chances to be inexperienced or foolhardy, it does not diminish the risk to the patient. In the hands of a skilled and careful operator he thinks it does diminish the risk. The question of greatest interest was whether by the use of the machine it was possible to effect a more perfect replacement than could be had by the manipulative method. The small experience which he had with the machine did not solve this question for him. He has not yet seen a replaced hip that immediately after the operation appeared to have the femoral head as deeply sunken in the socket as is the case in a normal hip, nor has this been shown by any X-ray that he has seen. It seems to him that, operated by the machine, the hip ought to be better than operated by hand. But is it? The only evidence we can offer are the two X-ray prints which Mr. Bartlett recently sent to him. The first shows the usual position before operation; the second shows an unusual position for hips replaced only a little over a month. The femoral heads are sunk more deeply in the acetabula than he has ever seen before, and the greater trochanters are where they belong, instead of being turned downward and inward, below and to the inner side of the femoral heads. With the femora in this position, the plaster casts extended to and including the feet to control rotation, one certainly ought to obtain a much larger percentage of permanent replacements than when the limb is put up in right-angled abduction, with the greater trochanter below the head and shaft, and the side of the head resting against the cotyloid opening. The use of the machine on cases that have relapsed into dorsal, anterior, supracotyloid, subspinous, or any possible position does not seem to give as satisfactory results as when used in virgin cases. It is like all other operative procedures: More difficult when one has tried and failed by some other method, and in cases partially operated and those that have been allowed to relapse through lack of proper after-treatment. In a word, he believes the machine to be a good and useful appliance; but it is a patented appliance: this and the terms demanded by Mr. Bartlett have prevented him from a more extensive use of it.

Prevention and Reduction of Deformity in Pott's Disease.—Dr. Charles E. Eikenbary, in a paper on this subject, expressed the opinion that no case taken in the early stage, before there is any deformity, or before the deformity is marked, need recover with anything but a perfectly normal spine, so far as contour is concerned, and many cases, probably 50 per cent., come to us in the later stages of the disease, that is, the subacute stage, when the deformity is quite marked, and have the deformity reduced one-half or entirely. There is no one single line of treatment that is applicable to all cases. All cases should wear some support, no matter whether the patient be confined to bed or not. The plan, so frequently pursued, of advising rest in bed and not insisting upon some form of support, is just as far from being correct as it would be in the case of a tuberculous knee or hip. Every jacket should be so carefully, so smoothly applied that no pressure sore or other complication is going to arise that would necessitate its removal for a few days. To thus wear a jacket intermittently is almost as bad as to wear no jacket at all. One case will suffice to illustrate this point: A. O., eight years of age, entered the hospital with high dorsal Pott's; no deformity. Treatment during the following two and a half years consisted entirely of plaster-of-Paris jackets. A number of times during the two and a half years the jackets were applied in such a manner as to be very uncomfortable, and to produce pressure sores, thus necessitating their removal for a few days or a week. During these periods the child was kept in bed, wearing no apparatus. At the end of two and a half years deformity was extreme. Most cases with a marked deformity give a history very similar to the above. So long as jackets are applied the least bit carelessly, so long as we get pressure sores and have to lay aside the jackets, just so long are we inviting deformity. Another factor that is so productive of deformity is failure to carry the jackets very high as well as very low in front. The higher the seat of disease, the higher must we carry jackets, so that in some cases of high dorsal or cervical Pott's, the plaster should be carried up so as to support the chin and occiput, the plaster being molded to fit the parts. As a general rule, one may say that the efficiency of the jacket increases exactly in proportion to its length, particularly its length anteriorly, owing to the greater degree of fixation. The position of the patient during the application of the jacket is another factor that is of the greatest importance. The vertical position is by no means as effective as the horizontal, owing to the fact that in the former case we get very little hyperextension, and therefore little reduction of deformity, whereas in the latter case one is able to get most any amount of hyperextension, and therefore a great deal of reduction of deformity. The horizontal position is best maintained by means of the Taylor kyphotome, the Ridlon bridge, or the apparatus of Goldthwaite. The important thing in either of these methods is to produce the maximum amount of extension at the seat of disease, and having obtained such extension to apply the jacket high enough and low enough that one will lose nothing that has been gained, and to apply it so smooth-

ly and so strong that a change under four months will be unnecessary. The stockinette shirt or undervest, whichever is used next the skin, should be pinned or tied over the shoulders and pinned between the legs, care being taken to stretch it perfectly tight so that no wrinkles will result. The author summarized as follows: (1) Cases seen before the stage of deformity should never be allowed to develop deformity. (2) Deformities in the acute or subacute stage can be reduced one-half or entirely. (3) Children under three years are best treated on the bent gas-pipe frame. (4) Cases over three years are best treated by the application of a solid plaster-of-Paris jacket. (5) Perfect technic and careful attention to little details are absolutely essential.

OMAHA (DOUGLAS COUNTY) MEDICAL SOCIETY.

Regular Meeting, held March 28, 1905.

Carlsbad.—Dr. A. F. Jonas, of Omaha, addressed the Society upon his personal experience as a patient, suffering from stone in the gall-bladder, requiring two operations. It was found necessary to take a course of after-treatment for the reason that pains still persisted. At the first operation the gall-bladder was practically filled by a stone. Recovery was prompt and he was at work again in about a month. In June, 1904, he had suffered from return of pain which had been very severe. Icterus was present and the most intolerable itching. He had felt reasonably certain that, if there was another stone present, it was a floating one in the common duct. He had become very septic and suffered very greatly from pain and insomnia. He was again operated upon and a small stone floating in the common duct was found. Recovery had been very slow and tedious and the sepsis had been very pronounced. The conditions present simulated the old pain when the stone had been present. The discharge had been ropy, tough and tenacious. When the discharge had been of this character, the symptoms had been quite severe. He had therefore determined to go to Carlsbad.

On the ocean trip he had suffered no pain. At once upon landing, the pain, jaundice and itching had returned. The stools had been clay-colored. Just before his physician took the case in hand, he had suffered from great pain, so severe that he used a grain and half of morphine within an hour. He had ironed his abdomen with a rubber bottle filled with boiling water, after which the pain had ceased, never to return. He had placed himself under the care of an internist of Carlsbad who had examined him with the greatest care. He had been very greatly impressed with the method used by his physician in giving his directions. These had been written out very carefully and minutely. At the top, was the warning that beer and wine were absolutely prohibited. The hour had been named when he was directed to drink. The spring from which he was to drink had been named as well as the quantity permitted. Hours had been assigned for rest, for walking, for outdoor loitering and for an abundant amount of sleep. Most minute directions had been given as to the very articles of food permitted and forbidden. All fats, including butter, all fried things and all fresh fruits and potatoes had been prohibited. He believed that a gall-stone is always preceded by infection in the biliary passages; that this produces a catarrhal condition of the tract; that the passage of the bile is retarded. He had spoken of the cholesterin in the bile, of its precipitation and the formation of stone upon the retardation of the flow of bile; had insisted that pain was not only due to the presence of stone, but also to these very conditions after the removal of a stone. He insisted that surgeons were too often in error in their advice as to gall-stone cases; that they were too often content to remove the stone and expect the patient to recover promptly. They had ignored the fact that the removal of the stone neither removed all of the existing infection, nor the results of the past infection.

He had insisted that the bile continued to flow sluggishly, to remain tough and tenacious and caused by the stone. He taught that drugs had no to continue the same symptoms as had been formerly effect whatever upon the flow of bile, but that the Carlsbad waters had a very decided effect. He had found that his stools became mahogany brown after two or three days' use of the water and remained so with slight variation. Dr. Jonas had been ordered to use the water from the cooler springs at first and had been told just when to change to the water of higher temperature. He had used a water of 163° F. at the close of his visit. He had been so greatly impressed by the minuteness of his physician's directions that he had fully learned that no greater mistake could be made by the physician than in sending their patients to any spring with the general instruction to go there and drink the waters. He had recognized fully the absolute necessity of every patient being under the care of a competent local physician. Two of his fellow-sufferers had spoken to him as to their failure to improve. Upon inquiry, he had found that they were under no one's care and were simply drinking water at haphazard. He referred both of these men to his physician and had been very much amused later to find that his physician had in turn sent the first one to the surgeon in Carlsbad for the removal of a gall stone, and the second one back home by reason of the fact that his trouble was pernicious anemia. He had also learned that the profession at Carlsbad found it necessary to have very many of their patients subjected to operation for gall-stone and that the waters had absolutely no value in the direction of dissolving any form of gall stone. He had found that the analysis of the waters made by Becker 150 years ago had not been changed: that recent examinations had showed that the waters contained sulphate of sodium, bicarbonate of sodium, chloride of sodium as the chief therapeutic ingredients.

He found that the season was from May to November; that it was one of the great resorts for pleasure as well as cure during the season and that about 110,000 guests were there each season. All the springs were owned by the municipality. All guests who remain eight days are required to register and are called Cure guests. All of these guests have to pay a Cure tax, varying from 20 crowns (of 20 cents each) to 4 crowns each for the season. Each one also has to pay a music tax of lesser sum. These taxes maintain the beautiful establishments, the bands and the parks. The physicians of Carlsbad are of all ranks and grades and are all private, employed here as in any other city. A splendid band of 60 pieces furnishes music during the whole day, music of classical character, for the promenaders. Hotel rates are not extortionate.

BOOK REVIEWS.

A Text-Book of Clinical Diagnosis. By L. Napoleon Boston, A.M., M.D., Associate in Medicine and Director of the Clinical Laboratories of the Medico-Chirurgical College, Philadelphia. W. B. Saunders & Co., Philadelphia, New York and London.

Dr. Boston has aimed particularly, in this manual, at making it practical, while avoiding sketchiness, intending it to be of use to those students and general practitioners who have not at their command unlimited laboratory equipments. The methods described, therefore, are such as could be carried out with a minimum of complicated apparatus. The volume opens with a short chapter on the structure, use and care of the compound microscope, illustrated by diagrams and pictures. The subject-matter proper is taken up under the headings: The Blood; The Urine; Gastric Contents; The Feces; The Sputum; Buccal Secretions; Nasal Secretion; Discharges from the Ear and Eye; Secretion of the Genital Organs; Transudates and Exudates; Cerebrospinal Fluid and Synovial Fluid; Diseases of the Skin; Milk. These in turn are suitably subdivided, and the various procedures in clinical technic required in the various diagnoses are carefully described, step by step, with many illustrations. The most recent and efficient methods of examination are dealt with, including those for the estimation of sugar in the urine, Bence-Jones albumin, uric acid and purin. Original drawings illustrate the progress in blood examination, and serum diagnosis receives careful consideration. Inoscopy and Cytodiagnosis are touched upon, and skin diseases, secretions of the eye and ear, and transudates and exudates are treated of at considerable length. The chapter on animal parasites of the feces is particularly full and satisfactory.

Light Energy. By Margaret A. Cleaves, M.D., Professor of Light Energy in the New York School of Physical Therapeutics, late Instructor in Electrotherapeutics in the New York Post-Graduate Medical School. Rebman Co., New York and London.

Dr. Cleaves takes up her subject with enthusiasm, and clears the ground by preliminary but extensive chapters on the theories and manifestations of light energy and the physics of light energy, proceding thence to a discussion of its influence on the lower forms of life, vegetable life and bacteria, and finally the higher forms. After expounding the physical effect and biologic action of light influence in general, she describes and discusses various light baths, sun, electric, arc and incandescent. To the first-named Dr. Cleaves attributes almost invariable good effects, terming it "the best possible form of light energy" except in the treatment of skin lesions, where a concentrated light energy of intense chemical activity is required. Its use is contraindicated in febrile conditions only, and the author especially commends its effect on wounds and sores. The arc light is also enthusiastically commended as the next best to the sun for general therapeutic purposes and preferable for skin localization. The more limited uses of the incandescent light bath are carefully expounded in the following chapter, and the contraindications for it, as dictated by the fact that its action is that of thermal energy, instead of chemical, as in the arc light, are given at length. The author next takes up the use of concentrated light energy, solar and electric arc, in the treatment of tuberculosis, lupus, and other affections. Blue, red and ultraviolet light energy are taken up in turn, the author finding indications for a more or less general use of each one, as also of the vacuum tube discharges discussed in the following chapter. She next advances upon the debatable ground of the "N" rays, and thence to the half-explored region of radium, reporting a number of cases of lupus, rodent ulcer, sarcoma, etc., in which cure or relief was obtained.

The phenomena of fluorescence are next considered, with their therapeutic uses and a brief treatise on sensitization. The volume closes with some remarks on the action of light energy on supersensitive skins, on insolation, and on the pathological effects of electric lighting. Throughout the volume the author carefully describes the technic of the various procedures, and she explains that the Roentgen ray is omitted from her discussions because of the mass of literature available elsewhere upon it.

Manual of Gynecology. By Berry Hart, M.D., F.R.C.P.E., Lecturer on Midwifery and Gynecology, School of the Royal Colleges, Edinburgh, etc.; and A. H. Freeland Barbour, M.A., M.D., F.R.C.P.E., Lecturer on Midwifery and Diseases of Women, School of the Royal Colleges, Edinburgh, etc. Sixth edition, with 2 lithographs and 359 wood cuts. W. T. Keener & Co., Chicago.

The first edition of Hart and Barbour appeared twenty-three years ago, and occupied one of the foremost places among works of its kind. The sixth edition adheres to the general style of the previous volume, and has been revised in a partially successful effort to meet modern requirements. The section devoted to the anatomy and physiology of the female pelvic organs is without question one of the best published. The chapter on physical examination of the pelvic organs is not so well presented. The entire subject of digital examination is discussed in six pages, while nineteen pages are devoted to a description of the volsella, vaginal specula and the uterine sound. The best efforts of the authors at modernization are in the sections on operative gynecology, in which many of the most recent operations are described in a clear, concise manner. The work as a whole well illustrates how difficult it is to renounce entirely the principles and theories which have been accepted as true, and which subsequent study has controverted. The reader can scarcely fail to observe that although many subjects are presented in accordance with modern ideas, there is an out-of-date background which tinges the greater part of the book. In discussing the subject of pelvic cellulitis the authors state that it is the rare exception to examine a multiparous female pelvis without finding some trace of the previous cellulitis or peritonitis. This certainly reflects discredit on Scottish diagnosticians, or it is an indictment of Scottish morality. Ectopic gestation, obscured under the heading "Pelvic Hematocele and Hematoma," is not given the attention merited by the importance of the condition. The treatment suggested throughout the book is, in the main, decidedly English, and in many particulars would not meet with the approval of the modern American gynecologist.

BOOKS RECEIVED.

Practical Pediatrics. By Dr. Graetzer. Translated by Dr. H. B. Sheffield. 8vo, 532 pages. F. A. Davis Co., Philadelphia.

The Development of the Human Body. By Dr. J. P. McMurrich. Second edition. 8vo, 530 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

An Introduction to Chemical Analysis for Medical Students. By Dr. E. W. Rockwood. Second revised edition. 8vo, 255 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

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